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A CONTRIBUTION TO THE STUDY OF THE ÆTIOLOGY OF DISSEMINATED SCLEROSIS.[1]

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Dr. E. W. Fairfax, Honorary Physician at the Royal Prince Alfred Hospital, has very kindly supplied us with the following history of a case, the pathological aspects of which we found of very considerable interest. We have to thank Dr. Fairfax and Professor D. A. Welsh for affording us the opportunity of examining the spinal cord.

History.

M.C., female, aged 19 years, single, whose occupation consisted of domestic duties, lived near Moree. She was admitted to the Royal Prince Alfred Hospital on March 19, 1914, complaining of stiffness of the legs and hands of a fortnight's duration. There was nothing of importance in the family history. Menstruation had started at the age of 14. It was regular, and lasted five days. She had had typhoid fever five years previously.

A fortnight before admission, while working a sewing-machine, her right foot was found to be stiff and heavier than the other. On the following night her hands became stiff. No pain was complained of. A week before she could only walk with the greatest difficulty, dragging the right foot and shuffling along. About this time she had retention of urine, and had to be catheterized ever since. She had also had incontinence of fæces.

The temperature was 100°, the pulse-rate was 116, and the respiratory-rate 28. There was no pain, the appetite was good, the tongue moist and slightly furred, and she slept well. The cardio-vascular and respiratory systems were clear.

Nervous System.

The patient was a bright, intelligent girl, rather emotional. There was no defect in articulation. The cranial nerves were normal, except for lateral mystagmus of both eyes. There was marked inco-ordination of the hands and arms, and intention tremor. A weakness of all muscles of the hands and wrists was noted, but there was a fair amount of power still in the upper arms and shoulders. There was a slight spinal curvature, with convexity to the right in the mid-dorsal region; no tenderness over the spine or on exerting sudden pressure on the head or shoulders was discovered. There was no limitation of movement or pain on movement of the spine. There was complete paralysis of both legs. The only muscular movement obtained was a slight contraction of the quadriceps in each thigh. There was definite sensory disturbance to pain, light touch, heat and cold, up to a level about three inches below each knee; the exact level was not defined. Above the knee the sensations of pain and those to light touch, heat and cold were normal. The patient's answers were very unsatisfactory, and the area of transition from normal to abnormal sensations appeared to extend from the knees to a point three inches below the knees on each side.

Reflexes.	Right.	Left.
Conjunctival	Present	Present
Pupil	Present	Present
Palatal	Present	Present
Epigastric	Absent	Absent
Abdominal	Absent	Absent
Plantar	Extensor	Extensor
Wrist jerk	Increased	Increased
Elbow jerk	Increased	Present
Knee jerk	Active	Active
Ankle clonus	Present	Present

Organic Reflexes.

Deglutition was normal. Retention of urine had been constant for several days, and incontinence of fæces was present. The fluid obtained by lumbar puncture under normal pressure was normal, according to the pathological report. Urine, 1013, acid, red in colour, opaque; albumin was present, but no sugar; there was a considerable deposit of pus and blood. The quantity in 24 hours varied from one pint four ounces to one pint twelve ounces.

On March 24 the condition was the same. The temperature was subnormal to 99°. She did not complain of pain, and slept well. The urine still contained much pus, but less blood. There was still retention of urine and incontinence of fæces. The sensory disturbance and paralysis were unaltered. Lumbar puncture again yielded a normal result. The Wassermann test was negative.

The following mixture was prescribed:—

Urotropin, gr. x.
Acid. sodii phosphatis, gr. xxx.
Aquam ad ℥ ½.
Every four hours.

The blood count was as follows:—

Leucocytes, 10,300
Neutrophiles, 73%
Eosinophiles, 1%
Lymphocytes, 23.5%
Transitional cells, 2.5%

Blood culture: no organisms found.

Bright blood appeared in the urine on the 27th. Urotropin was suspended and boracic acid and benzoate of sodium substituted.

There was complete paralysis in legs, no movement in quadriceps being felt. There was complete absence of all sensation below the knees; above

[1] From the Pathological Laboratory of the Lunacy Department of New South Wales.

there was a doubtful area of two or three inches, and still higher the sensations were normal. There was considerable loss of muscular power in the hands, arms and shoulders, but no definite paralysis. The power was about equal on the two sides. The patient was very pale and general condition not so good.

On April 1st the temperature reached 103°. Subsequently it varied between 102° and 99° each day.

The patient's condition had become gradually worse up to April 16.

There had been vomiting during the days preceding this date. The patient took little food; the amount of urine was decreasing in quantity; there was much blood and pus. No alteration in the reflexes, paresis or sensations was noted.

She died on April 20, 1914.

The case proved to be one of disseminated sclerosis. We received the cord in this laboratory, and it was carefully investigated. As we shall discuss the observations at some length, we should like first of all to review the present position of the subject shortly, basing our epitome to a large extent on the admirable account of the disease given by Williamson in his "Diseases of the Spinal Cord."

In typical cases the condition is divisable into three stages: first, the stage with indefinite symptoms; second, the stage with well-marked symptoms; and third, the stage in which there is failure of organic functions, often with paralysis of sphincters and the supervention of bed-sores and cystitis.

While the onset is usually gradual, it is at times rapid. The most common symptoms complained of by the patient during the onset are a feeling of weakness in the legs, a tremor of the head or limbs, impairment of vision, and at times vertigo and cerebral confusion. Visual failure may precede the other symptoms by years.

In the second stage, the most prominent signs and symptoms in a typical case are the tremor of the arms, an alteration in speech, weakness, combined with a spastic condition of the legs, exaggerated knee jerks, ankle clonus, and an extensor form of the plantar reflex. The speech is scanning, the tremor is only seen on voluntary movement, but affects all the muscles of the limbs. On attempting to write the pen is often broken. Probably half the cases show visual disturbances, and these may be of severe nature and disappear later. Optic atrophy is noted in 40% of the cases. The gait, at first little altered, may become spastic and even staggering later. Actual paralysis is rare.

In the later stages, weak-mindedness, with failure of memory and great emotional disturbances, may occur. At this stage bed-sores appear, together with cystitis, nephritis and great emaciation.

At no stage of the disease are sensory disturbances marked. Rectal disturbances are usually absent, and vesical troubles only occur later in the disease.

In the spinal form of the disease the symptoms are those of spastic paraplegia, and the condition may progress to death without any of the characteristic symptoms of the disease appearing. In these cases the bladder is usually affected towards the termination. The symptoms may resemble those of a chronic, transverse myelitis.

There is also a bulbar form of the malady.

Williamson states that attention has recently been drawn to a form of disseminated sclerosis, which runs a very rapid course. It is termed acute, and leads to death within three months, with the characteristic lesions.

Latent forms have been described, with headache and vertigo, but none of the other prominent symptoms. On subsequent examination the typical lesions have been discovered. The differential diagnosis usually involves a consideration of lateral sclerosis, ataxic paraplegia, general paralysis of the insane, tabes, Friedreich's ataxia, multiple cerebro-spinal syphilitic lesions, tumours, and all varieties of myelitis.

The prognosis is necessarily bad, but the patients may survive a long time.

The pathological anatomy has been very well worked out. Patches of sclerosis are scattered about in the most irregular manner in the brain and spinal cord. The optic chiasma and nerves are often involved, but the other cranial nerves usually escape. The spinal nerve roots, including the nerves of the *cauda equina*, are at times invaded.

In general, the nervous tissue adjacent to the sclerosis is normal, but there is no sharp boundary to the new formation.

The chief macroscopical characteristics are:—

(1) The insular character.
(2) The irregular dissemination.
(3) The absence of secondary, ascending and descending degeneration in the majority of cases.

DESCRIPTION OF PLATES.

PLATE I.

Fig. 1.—First Appearance of Sclerosis in Dorsal 8 or 9. The lumbar region was quite normal. The sclerosis is most evident about the grey matter of one side.

Fig. 2.—The Sclerosis has extended considerably at this level (Dorsal 7, 8), and has involved the anterior columns, and the other half of the grey matter.

Fig. 3.—The extensive region here involved, about the level of the sixth dorsal, includes most of the antero-lateral tracts and the whole of the grey substance.

Fig. 4.—This level, say Dorsal 5, presents almost a complete transverse lesion. It is to be noted that the spinal nerves emerge nearly normal in appearance, whereas in normal sections they tend to decolourize more than the intramedullary fibres.

Fig. 5.—A considerable distance above the last, *viz.*, Cervical 8. The posterior tracts alone seem involved, and the process is much more acute.

Fig. 6.—About Cervical 5, 6. Only a small area remains affected on either side of the postero-median septum.

Fig. 7.—About Cervical 5. Only the faintest trace of sclerosed area can be seen by the microscope; the photograph appears normal.

Figs. 8 and 9.—Sections through medulla, which are apparently quite normal.

Fig. 10.—However, in the unstained portion representing the floor of the fourth ventricle, at and on either side of the mesial line, can be recognized a dense mass of gliosis beneath the lining epithelium. This is of interest in connexion with a paper by Claude, Vincent and Lévy-Valenski, who describe a condition of "subacute ependymitis," and suggest this condition as a possible prelude to some forms of disseminated sclerosis.

Fig. 11.—This is an enlarged micro-photograph of Fig. 4; only the marginal areas of the section retain the stain by Weigert's method.

Fig. 12.—This is a section near the preceding section, but stained according to Marchi's method. The degenerated fibres nearer the grey matter stain black, while the periphery escapes. The dark lines at right angles to the surface are the vessels whose adventitial sheaths are packed with phagocytic cells containing degenerated myelin, which shows black.

Fig. 13.—This figure is an enlargement of Fig. 5. The "Heller" osmic acid stain not only shows up the normal myelin fibres a jet black, and the partially diseased myelin sheaths a pale grey, but also brings out the compound granular cells in the adventitial sheaths of the blood vessels, which stand out as collections of black dots in the dorsal tracts.

Even when almost the whole transverse thickness of the cord is involved in the sclerosed patch, the dorsal columns above the lesion, and the lateral cortico-spinal tracts below the lesion usually show no signs of secondary degeneration. It is this feature of disseminated sclerosis which distinguishes it sharply from other multiple lesions, such as scattered patches of myelitis or multiple syphilitic lesions, which result in well-marked ascending and descending degeneration.

Microscopically, the patches are usually sharply defined, though the high power reveals a varying number of healthy fibres in the edge of the patches, and in the same region compound granular cells are seen, together with other indications that the morbid process is still active. In the patches of sclerosis the axons of the nerves are usually still present, though the myelin sheaths are absent. In the oldest portions, even the axons have disappeared. In the grey matter the nerve cells escape degeneration for a long time, but finally they and the surrounding nerve fibres may disappear. The neuroglial tissue of the diseased patches is often greatly increased, and becomes very dense; nuclei are not usually abundant, but in other cases spider cells may be present.

It is asserted that patches occur in which the nerve fibres have degenerated and spaces are left in the neuroglia, which shows no tendency to proliferate. If this be true, then four forms of sclerosed patches may be met with:—

(1) Patches in which the nerve fibres have disappeared, leaving sieve-like spaces in a slightly proliferated neuroglia.

(2) Patches in which there is marked proliferation of the neuroglia and the nerve fibres have disappeared.

(3) Patches presenting diffuse proliferation of neuroglia, with persisting nerve cells and fibres.

(4) Patches presenting changes very similar to those of slight cerebral softening, *viz.*, myelin droplets and granular phagocytic cells in a poorly staining area; groups of these phagocytic cells are seen in the perivascular lymph spaces.

Both the white and grey matter may be affected, but the condition more usually affects the former. The patches may be almost microscopic, or may be very large. Recently, Robinson has described an associated fibrous change in the peripheral nerves and in the posterior spinal ganglia.

The absence of secondary degeneration above and below the lesions is ascribed to the fact that the axons are persistent, though the myelin sheaths disappear. Another point of importance is the presence in the same patient of patches in different stages of development, a fact which tends to show that the causal factor is persistent rather than cataclysmal.

The blood vessels are sometimes normal, but more usually they show distinct thickening of the walls, with evidence of endo- or peri-arteritis. A thickened blood vessel is frequently seen in the centre of a diseased patch. In recent patches the peri-vascular lymph spaces are filled with round cells containing granules and fat globules.

In the case which has given rise to this paper, we found a definite localized sclerosis of the spinal cord, extending for some distance above and below the fifth dorsal segment. At this level the gliosis was so complete as to give rise to the appearance of a complete transverse lesion (*vide* Plate I.). We found in this lesion the following main facts:—

(1) An overgrowth of the neuroglial tissue, reaching a condition of intense gliosis of both the grey and white matter.

(2) The presence of some giant neuroglial cells; these were present in considerable numbers, but not nearly to the same extent as seen in the cerebral cortex in general paralysis of the insane.

(3) Areas of white matter in which the nerves were normal, alongside of areas in which the myelin was practically destroyed and of other areas in which the myelin was completely destroyed. This affection of the myelin was not coincident with definite nerve tracts.

(4) There was remarkable persistence of the axis cylinders in practically all the affected areas.

(5) The nerve cells escaped destruction, even in the midst of the most intense gliosis.

(6) Sections of the cord presented a normal appearance above and below the lesion, showing that the affection of the myelin was only present for a limited distance in the course of both the ascending and descending fibres.

(7) The adventitial sheaths of the blood vessels were packed with compound granular cells, loaded with débris of disintegrated myelin, which stained black with osmic acid.

DESCRIPTION OF PLATES.

PLATE II.

Fig. 1.—This represents a transverse section of the spinal canal of an ox.

Fig. 2.—This represents a transverse section of the spinal canal of a human fœtus.

Fig. 3.—This represents a transverse section of the spinal canal of a normal young adult, whose cord stained perfectly, and appeared in every way normal.

Figs. 4, 5, and 6.—These represent similar sections through the spinal canal of this patient at levels Cervical 5, Lumbar 2, and Dorsal 6.

Fig. 7.—This represents a drawing of part of the sclerosed area in the white substance at a level corresponding to Dorsal 6-7, or Fig. 3, Plate I. The felted network of fibres is seen enclosing spaces. The empty spaces are where every trace of nerve fibre has disappeared. This was a Marchi specimen, strongly counterstained with picroazofuchsin G. The large round black circle is a partly degenerated myelin fibre so stained. The spaces with a single dot or comma shaped structure are those in which all trace of myelin has disappeared, but the axis cylinder has persisted and stains bright red by this method. Similar spaces, but containing in addition numerous small dots, represent myelin fibres where the "black" Marchi osmic reaction has been dissolved out by the excess of the "picro" stain and xylol, and the residue is stained a weak, dirty pink. The two striped or check structures in the right-hand bottom corner are two normal myelin fibres, whose myelin stains yellow and whose axon stains red by this method. Three "irritation" neuroglia cells can be made out with their processes. A blood vessel on the left contains *Gitterzellen* in the adventitial sheath.

(8) There is little evidence of any cellular infiltration of the pia or of the adventitial sheaths of the blood vessels in the parts of the cord away from the lesion. This fact proves that the vascular condition is rather a result than a cause of the lesion.
(9) The spinal nerves, motor and sensory, show no pathological changes.

The Ætiological Question.

The ætiology of the disease rests at present in a most obscure condition. Where a localized lesion has to be dealt with, it may be explained by some local cause. In disseminated sclerosis we have at times a very localized lesion, but in other cases the gliosis may be very widely spread. Under these circumstances there can be no doubt that some very general cause or causes must be at work. Furthermore, though the cause may be general in a sense, yet it shows a certain degree of selection in its action. The number of known pathogenic factors capable of acting in this way are very limited, and it should be possible to place the causes of disseminated sclerosis within very narrow limits.

The causes which may be considered are as follows:—

(1) Toxæmias.
(2) Infections.
(3) Vascular conditions.
(4) Special developmental conditions.

Colour is lent to the toxæmic theory by the report of cases following on some of the specific fevers, *e.g.*, scarlet fever. But we already know a great deal about the effects of toxins on the nervous system, and much of it is not in consonance with what we find in disseminated sclerosis. Toxins have been experimentally introduced in the neighbourhood of large mixed nerves, and the influence of the toxins of carcinoma of the face on the fifth cranial nerve and the Gasserian ganglion and on its central connexions have been investigated. It has been shown by Orr and Rows that:—

(*a*) The nerve immediately above the point of entry of a toxin shows a cellular infiltration, more especially beneath the epineurium.
(*b*) An infiltration by plasma cells, polyblasts, etc., occurs in the posterior spinal or corresponding ganglia.
(*c*) Proliferation occurs of the capsular cells of the neuronic bodies in the spinal ganglia.
(*d*) Pigmentary degeneration of the cells and finally atrophy of the ganglion cells occur.
(*e*) Destruction of both the myelin and axon occurs in the sensory neurons, and this destruction is definitely limited to tracts.
(*f*) Increased thickness of the pia-arachnoid is found, due to the presence of endothelial cells, plasma cells, and œdema.
(*g*) There is very scanty neuroglial reaction in the cord.
(*h*) An excessive plugging of the central canal, combined with a gliosis of the walls of the ventricles, producing granulations, is observed.

Now it will be seen that most of these conditions are wanting in the case we are examining, so that there seems to be reasonable cause to believe that in this case at least other influences were at work.

We have considered, of course, that the toxin gained entry along the nerve sheaths. Had it come by the central canal or the blood stream, its localized action would be still more difficult to understand, and we would still have the majority of the difficulties already enumerated.

As regards infection, very much less difficulty is met with to explain the definite localized effects, because it is easy to conceive of bacteria producing minute infarctions in various portions of the nervous system. Against the probability of infection as a cause we have in the majority of cases the complete absence of the ordinary evidences of microbic infections. The patients suffer from no rise of temperature, and no bacteria have ever been isolated from their blood. There is less evidence against the presence of some form of protozoal infection. All efforts to discover the presence of such an organism have been fruitless, if we except the evidence of an occasional positive Wassermann reaction. Changes in the condition of the vessel walls may admittedly result in localized alterations of the tissue, and it is noteworthy that so many writers on this subject have pointed out the very frequent presence of altered vessels in the sclerosed patches. Personally, we can confirm these observations. In the consideration of general arterio-sclerosis, we are led to admit that a large number of more or less permanently acting toxins may conduce to the result, and in cases of disseminated sclerosis it cannot be denied, in view of the presence of these thickened arteries, that we have in many cases to deal with individuals suffering, or who have suffered, from chronic intoxications, which have affected the blood vessels especially. The absence of these nervous complications from most cases of arterio-sclerosis shows, however, that the vascular condition can only be a contributory one.

In considering the possibility of developmental conditions playing a part in the pathogenesis, it is recognized that there is little evidence that heredity has anything to do with it. In this connexion, however, we wish to call attention to the fact that in some cases of disseminated sclerosis there is a peculiarly embryonic condition of the epithelium lining the central canal. As will be remembered, the central canal in the adult is usually obliterated with cellular débris. This débris stains badly, and the epithelium is so obscured that débris cannot be distinguished readily from epithelium. Round the canal are usually seen a few poorly-staining, indefinite, neuroglial nuclei.

In the case we have had the opportunity of investigating, we found that the epithelium lining the central canal was extremely well defined, and limited a empty channel. It was also observed that at the angles of the lozenge-shaped space the epithelium was proliferating and growing freely into the surrounding grey matter. In order to emphasize the primitive condition of this epithelium we have illustrated in Plate II. some similar conditions.

If a section (Fig. 3, Plate II.) of the ordinary adult human central canal be compared with a section of the canal in this case (Figs. 4, 5, and 6, Plate II.) and also with that of a human fœtus (Fig. 2, Plate II.), and with that of an ox (Fig. 1, Plate II.), it will be seen that there is a marked resemblance between the sections. This suggests to us that we may possibly be dealing with a downgrowth of cells from the central canal, which, as they sink deeper into the tissues, acquire the characters of rudimentary neuroglial cells, and thus produce a localized mass of this tissue.

This neoplastic derivation from the cells of the central canal cannot perhaps be applied to the tangled masses, which occur in this condition in the white matter, though even this derivation is not always to be excluded. But though the ependymal cells are the most primitive and therefore the most likely to be the origin of a new proliferation, still we have to remember that very definitely formed tissues may produce most undifferentiated tumours, and we cannot exclude the neuroglia of the white columns from this defect.

That neuroglia cells in all parts of the central nervous system are capable of taking on a most active growth, one indeed far in excess of anything demanded for the support of a neoplastic theory of the kind suggested in this disease, is shown by the numerous cases of glio-sarcomata, where small neuroglia cells at times become the parents of gigantic, actively proliferating daughter cells.

As tumours in other parts testify, the rate of growth varies immensely, and a case such as the one we are considering stands for rapidity at one end of the series, and the more prolonged cases at the other.

It may be argued that multiple tumours are the exception in the general tissues, but it is only necessary to remember conditions as multiple fibromata, and, more aptly, multiple neurofibromata, in the skin, to admit at once that the hypothesis of a neoplastic origin of the neuroglial masses in disseminated sclerosis cannot be negatived on this ground alone.

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Reports of Cases.

A CASE OF CEREBRO-SPINAL MENINGITIS TREATED BY SOAMIN; RECOVERY.

By **M. W. Gutteridge, M.B., C.M. (Edin.), M.R.C.S. (Eng.),**
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Private W. W. R., aet. 19, had been liable to occasional nasal discharge and attacks of tonsilitis. There was also deflection of septum nasi.

He went into camp on March 10, 1915, and was fairly well until April 18, when he had a severe attack of diarrhœa.

On May 2 he had occipital and lumbar pain, which increased on the 3rd, accompanied by cough, sore throat, and difficulty in swallowing, with anorexia and slight diarrhœa. On May 4 he had a two-mile run before breakfast, and felt "fit," but still had the cough and sore throat; he was medically examined as to fitness to be sent to the front, and was told he was "all right."

May 5: The cough and sore throat had become worse. There was a buzzing headache, and he complained of frequent cramps in the thighs and calves, especially when attempting to sit down. He felt very tired.

May 6: The patient complained that his head felt bursting. A cold in the head had developed, with difficulty in swallowing. One of the men in his tent developed measles, and was removed to the isolation camp.

May 7: All the men in the tent, including the patient, were put in the isolation camp. The patient felt very hot, with aching in the head, shoulders and back, lachrymation with sore throat and difficulty in swallowing. He said that his head and hands felt as if they were too large. In the evening he was removed to his home. During the night profuse perspiration broke out.

May 8: The temperature at 10 a.m. was 99°. There was a papular eruption on the chest, abdomen and limbs; granular patches were seen on the throat, and there was difficulty in swallowing.

May 9: The patient was better, though his feet felt numbed.

May 10: The condition was improved. The temperature at 8 a.m. was 99°, and at 8 p.m. 98.4°.

May 11: The patient was able to go out. I examined his naso-pharynx, and found the left turbinate enlarged, with inflamed patches on the posterior pharyngeal wall.

May 12: At 8 a.m. the temperature was normal. Headache was complained of, and vomiting of greenish fluid occurred at intervals throughout the night.

May 13: The temperature at 8 a.m. was 102°, at 11 a.m. it was 104°, and at 4 p.m. 99°. The vomiting continued during the morning. The bowels were constipated. A papular eruption reappeared on trunk and limbs. At night he became very restless, with delirium and muscular jerkings over the whole body, and rigidity of muscles of neck, vomiting and retching were nearly continuous. The temperature at 10 p.m. was 104.2°.

This article was published in the issue of September 4, 1915, but by an accident, the wrong temperature chart was appended. We therefore reprint the article with the proper chart.

May 14: At 3 a.m. he became easier, and the temperature fell to 102.4°. At 11 a.m. it was 101.4°. At noon vomiting recommenced; the patient became delirious, with violent pain at the root of the nose, and clutching pain at throat, and photophobia.

At 4 p.m. he was admitted into hospital. The temperature was 101°. The pulse-rate was 80, and the respirations 28 to the minute. There was marked rigidity of neck muscles, with retraction of head and general tenseness of muscles. The pupils were equal, and reacted to light. The tongue was thickly coated. The heart and lungs were normal. The abdomen was distended. Pressure hyperæmia was noted. Romberg's sign was well marked. Urine, Sp. Gr. 1020, clear, no albumin, no sugar. He was put on diet of milk, strained broth and barley water. Cold was applied to the head by the irrigation cap, and instructions were given that whenever the temperature reached 102° the patient was to be put into a hot pack.

May 15: At 10 a.m. he was put in the hot pack one hour. A brown fluid stool was passed. He vomited greenish fluid. He was very restless, trying to get out of bed. At 9 p.m. he refused nourishment, retching occurred, and he complained of nausea. He was delirious during night. Six fluid stools were passed in 24 hours.

May 26: There was headache, and the limbs were tremulous. At 11 a.m. an intradural injection of 10 c.cm. of anti-meningococcal serum was made. He slept well.

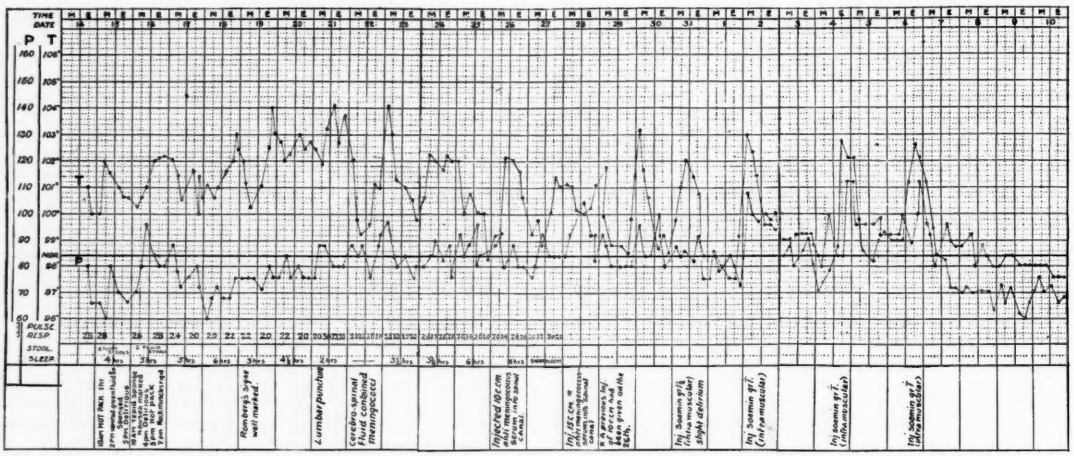
May 27: The patient slept during day. At 9 p.m. an enema was given. He had a restless night.

May 28: At 11 a.m. 15 c.cm. of anti-meningococcal serum were injected into the spinal theca. He complained of headache and general weariness. He passed a restless night.

May 31: At 10 a.m. an intra-muscular injection of 1½ grains of soamin (*sodium para-aminophenyl arsonate*) was given. This was followed by several hours sleep. There was some muttering delirium, but otherwise the general condition was improved. He slept for five hours during the night.

June 1: The patient took nourishment better. The good condition was maintained, though Romberg's sign was still marked. There was less rigidity of the neck muscles. The temperature was sub-normal all day, but rose to 99.2° at 10 p.m., and at 2 a.m. to 103°.

June 2: One grain of soamin was injected intra-muscularly at 5 p.m. This was followed by a natural sleep of five hours, improvement in appetite, with lessened muscular rigidity, and decreased Romberg's sign. The temperature



May 16: He complained of severe headache, with nausea, and the cough was troublesome. At 2 p.m. sudden spasms of pain in head set in, followed by deliriousness and restlessness. At 6 p.m. he was put in the hot pack for 1½ hours.

May 17: At 11 a.m. the hot pack was employed for one hour, after which the general condition improved, but the cough remained troublesome. He slept fairly well during the night.

May 18: Hot foments were applied to the back of the neck, and were renewed frequently. At 8 p.m. an enema was given with good results; a normal stool was passed. He had a comfortable night, and slept for six hours.

May 19: At 9 a.m. hot sponging was employed. A brown fluid stool, with some curds was passed. The milk ordered to be peptonized. At 11 a.m. he was put in a hot pack for 1½ hours, after which he seemed tired. At 6 p.m. hot sponging and tepid compresses to the abdomen were carried out. He had a restless night, sleeping only three hours.

May 20: The cap was reapplied to his head at 1 p.m., but as it distressed the patient it was removed. Tepid compresses to the abdomen were reapplied. He had a much better night, and slept for 4½ hours.

May 21: Lumbar puncture was performed. The intraspinal pressure was low, and the fluid slightly turbid. It was forwarded to the University Bacteriological Laboratory for examination. At 9 p.m. a hot pack was applied for one hour. The cough was still troublesome.

May 22: Dr. Bull reported that the cerebro-spinal fluid contained the *meningococcus intracellularis*.

remained below 99° until 6 p.m. on June 4, when a third injection of soamin (gr. 1) was given.

The temperature fell gradually to normal on June 5; it rose again slowly until it reached 102.6° on June 6, when a fourth injection of soamin (gr. 1) was given. The temperature fell gradually, and reached normal at 10 a.m. on June 7. There was no further rise of temperature after this date. The rigidity of the muscles and Romberg's sign gradually disappeared. The patient's condition improved daily, although there were signs of cardiac weakness and general muscular enfeeblement, which, however, gradually improved under the administration of strychnine and strophantus, aided by massage and electricity.

The patient was able to be moved out on to the balcony on June 24, and on July 10 he was able to walk a few steps, but found difficulty in keeping his balance.

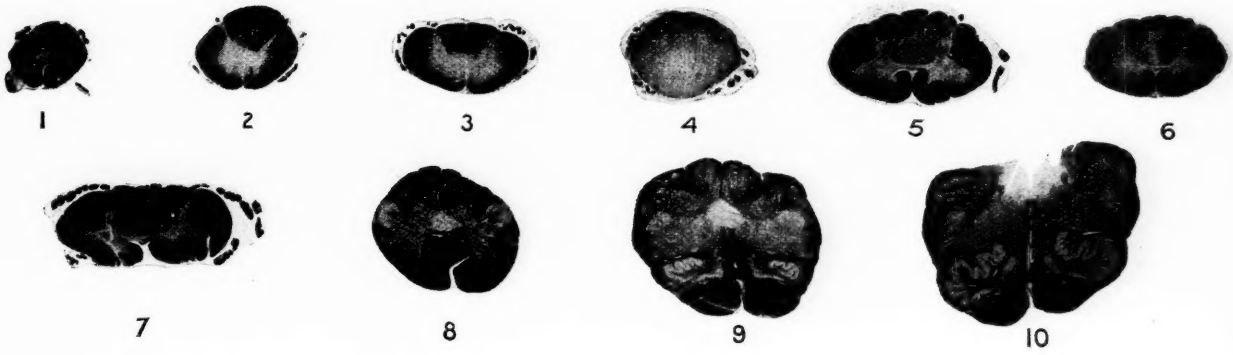
He left the hospital on July 30. On August 7 he was practically well, with fair walking powers, though there is still a tendency to keep the feet wide apart. There were no sequelæ except a slight *epidydimitis*.

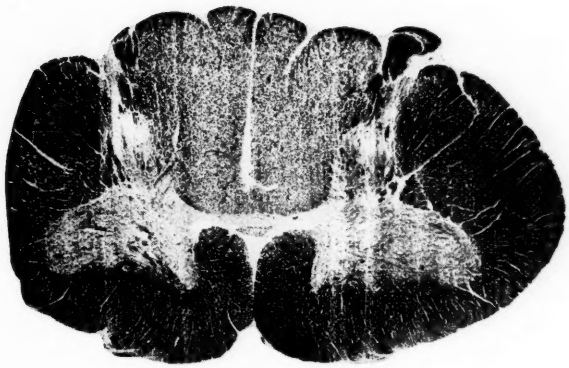
The chief points of interest are:—

1. The gradual development of the disease.
2. The absence of any marked skin eruptions.
3. The absence of eye symptoms, *e.g.*, strabismus and diplopia.
4. The troublesome and continuous cough preventing sleep.
5. The relief afforded by hot packs.
6. The good results following the intramuscular injections of soamin and the small quantity used, only 4½ grains being injected altogether.

PLATES ILLUSTRATING DR. J. FROUDE FLASHMAN AND DR. OLIVER LATHAM'S ARTICLE.

PLATE I.





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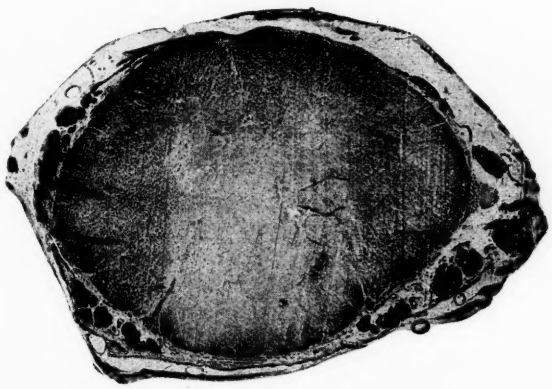

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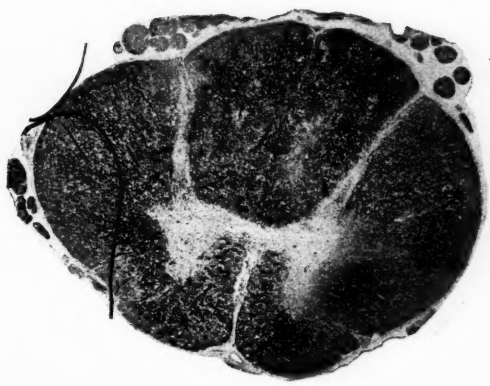

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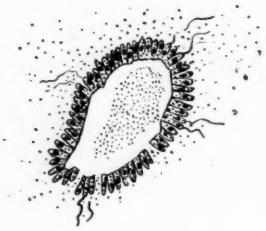
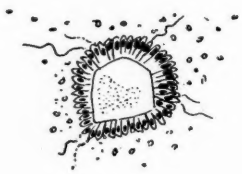
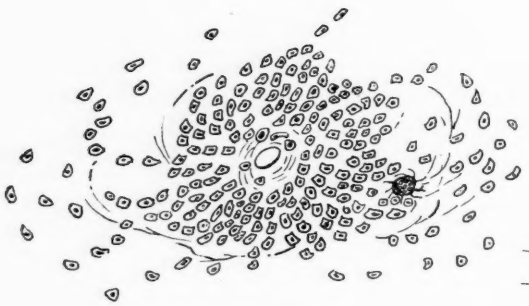
PLATE II.



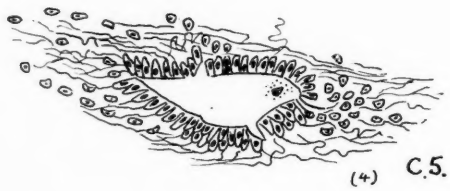
(1) ox



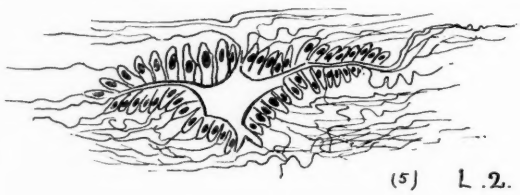
(2) Foetus.



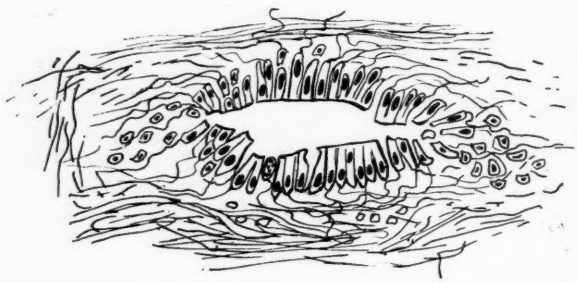
(3) N. D4.



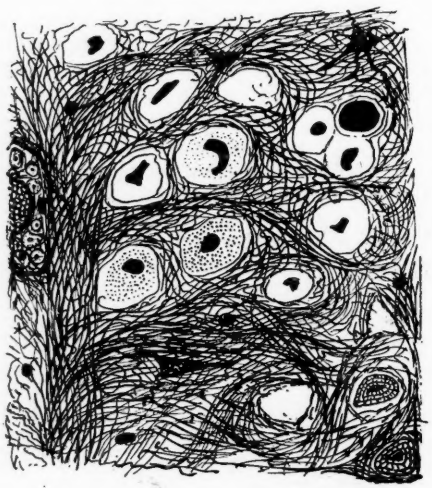
(4) C.5.



(5) L.2.



(6) D.6.



(7) D.6. sclerosis

7. The practical absence of sequelæ.

The success of the treatment by soamin in this case would suggest its antagonism to the meningococcus; it will therefore be interesting to observe the result of its administration in the earlier stages of the disease; it might also be useful as a prophylactic in half-grain doses.

A FATAL CASE OF POISONING BY β-EUCAINE.

By **Judah Leon Jona, D.Sc., M.D., B.S.,**
Malvern, Victoria.

The following case is of interest on account of the extreme rarity of a fatal termination to acute eucaine poisoning, and also on account of the fact that there was during life nothing to indicate that the patient was likely to suffer any ill consequence. I can find no published record of a fatal case of acute eucaine poisoning.

On July 14, 1915, C.L.P., æt. 10 years, apparently in the best of health, attended the surgery of a registered dentist to have a tooth extracted. The dentist injected into the lad's gum about 2 minims of a 2½% solution of β-eucaine lactate,* prepared by a qualified chemist about two weeks previously. He had used this same solution many times previously on other patients, without any untoward results. Almost immediately after the injection the patient collapsed.

I was at once sent for, and arrived immediately afterwards. In the meantime, amyl nitrite was given to the patient and artificial respiration performed. On arrival, patient was comatose, cyanosed and breathing very feebly, and was pulseless.

I injected 0.1 gm. (1.5 gr.) of camphor (vaporole) hypodermically, and gave oxygen; and also applied a faradic current to the back of the neck. The corneal reflex was absent, the pupils were fixed and half-dilated.

The patient recovered somewhat. The corneal reflex returned and the pupils reacted sluggishly to light. The colour improved, but he never regained consciousness.

A good deal of mucus was heard rattling up and down the trachea, and occasionally came up into the mouth, but every attempt to wipe the mouth out stopped the breathing.

About 15 or 20 minutes after my arrival, as the patient seemed to be going off again and the heart sounds were very feeble, another injection of camphor was given, with 1 c.cm. of pituitary extract (B.W. & Co.), and 15 minims of ether were injected into the heart. The breathing now was of Cheyne-Stokes character. The corneal reflexes were absent at this time, and the pupils became fixed and dilated. The patient was choked up with mucus and frothing at the mouth.

Breathing stopped completely about half-an-hour after my arrival, but as auscultation indicated that the heart was still beating feebly, artificial respiration and the administration of oxygen were continued for about half-an-hour, the faradic current being applied at intervals to the neck. At the end of this time no heart sound could be heard, and the patient was quite dead.

The mode of death was in some ways very suggestive of the mode of death in anaphylaxis,

Appended are notes on the post mortem examination by Dr. C. H. Mollison, to whom I am indebted.

The medical history of the boy does not contain anything to indicate the possibility of the catastrophe that occurred.

Report of the Post Mortem Examination of the Body of C.L.P.

The body was that of a boy, about 10 years of age; it was only moderately well nourished.

Rigor mortis and post mortem staining were present; there were several marks of puncture in the cardiac region.

On opening the body an odour of ether and of camphor was observed.

The large veins of the neck and chest were distended with dark, fluid blood; the right side of the heart was also distended with similar blood. The cardiac wall was thin and flabby, both ventricles were dilated; the tricuspid orifice admitting four fingers, the mitral three with difficulty; there were streaks of atheroma about the base of the aorta.

There was slight œdema of the folds about the glottis; the windpipe was congested; the bronchial tubes contained a little fluid; the lungs were congested.

The lymphoid structures of the body internally were hypertrophied, especially the tonsils, the follicles at the root of the tongue, the thymus gland, the mesenteric glands and the Peyer's patches and solitary glands of the intestine.

The liver and spleen were tough. Microscopic sections of the liver showed thickening of the capsule and stroma in the substance; the small arteries were thickened, and their endothelial lining showed proliferation.

The kidneys were firm; the cortical substance was swollen-looking.

The stomach contained a little thick fluid and food.

The brain was congested.

* The solution used was made according to the following formula:—
R.—β. eucaine lactate, 3 i.
Adrenalin hydrochloride solution (1 in 1,000), 3 i.
Ol. menth. pip.
Chloroform, aa, min. iii.
Normal horse serum, 3 iii.
Water (filtered and sterilized), ad. 3 v.
M. Ft. inject.

THE PATHOLOGICAL CLUB OF SYDNEY.

A meeting of the Pathological Club of Sydney was held in the Bacteriological Laboratory of the Department of Health, Sydney, on September 8, 1915, Dr. H. G. Chapman, the President, in the chair.

Dr. H. G. Chapman reviewed the question of the acidity of milk. He had found that when milk was titrated with decinormal alkali, with phenol-phthalein as an indicator, its reactivity was such that the addition of a quantity of the alkali to 100 c.cm. of milk, varying from 12 to 20 c.cm., was required to render the indicator alkaline. Even if milk was tested immediately after its withdrawal from the udder it showed much variation in the degree of acidity. When the milk fresh from the cow was kept under ordinary household conditions at a temperature about 20° C. the reactivity to alkali did not alter for twelve hours; its acidity then commenced to increase, so that in fourteen hours it became sour to the taste, and in seventeen to twenty hours clotted by acid curdling. Its acidity at the point of curdling was such that 10 c.cm. decinormal alkali were required to render 100 c.c. milk neutral to phenol-phthalein. When the temperature of the milk was raised, and the titration performed at 70° C., the addition of much less alkali was needed to give an alkaline reaction to the milk. Dilution with water also lessened the reactivity of the milk to alkali.

To determine the characters of this reactivity milk was filtered through a porcelain candle, and the clear faintly yellow filtrate, or milk serum titrated with alkali. The milk sera yielded figures varying from 2 to 6 c.cm. decinormal soda for each 100 c.cm. serum. Filtration through porcelain removed the fat, caseinogen, and portion of the lact-albumin. Estimations of the inorganic phosphates and of the lime showed that about one-half of the inorganic phosphates, and rather more of the lime, were retained by the filter.

Mr. H. S. Wardlaw had found that spinning milk in a centrifuge led to the formation of a deposit. The amount of this deposit increased with the time of spinning. The deposit contained phosphates of lime, protein, other nitrogenous substances, and a reducing carbohydrate. The amount of the deposit increased to considerable amounts when the spinning of the milk was prolonged. It was not possible in 16 hours to collect the whole of the inorganic phosphates removed by filtration through porcelain in the deposit. Mr. Wardlaw had endeavoured to estimate the quantity of phosphates in true solution by dialysing milk against small quantities of water. He had dialysed a litre of milk against 25 c.cm. water contained in a sac made of collodion, until the freezing point of the dialysate had become identical with that of the milk. On estimating the amount of phosphates in the dialysate it had been found to vary from 35 to 56% of the inorganic phosphates of the milk.

Towards the end of 1914, van Slyke had investigated this question. He had determined the acidity in the same manner as had been followed in Sydney, and also after the addition of a small quantity of a saturated solution of potassium oxalate. The addition of the oxalate precipitated the lime as calcium oxalate, and thereby led to a great diminution in the reactivity of milk to alkali. When alkali was added

to milk it disturbed the equilibrium of the ions of the solution, and led to the precipitation of tri-calcium phosphate. In consequence of this change milk needed twice as much alkali to neutralize the dihydrogen calcium phosphate as was required by the end point of the salt to titration with phenol-phthalein.

Van Slyke had passed milk through a porcelain filter, and titrated the filtrate. He found that the acidity of the serum was the same as that of the milk treated with potassium oxalate. He had also carried out a series of estimations of the various forms of phosphates in milk. From these estimations he had concluded that the reactivity of milk was entirely due to the presence of phosphates, and not to any reaction with the caseinogen.

Dr. Cooksey drew attention to the fact that he had devised a method for estimating phosphates dependent on the reaction with calcium. He had found the method very satisfactory. He pointed out that in performing these titrations on milk care must be taken in expressing the results not to confuse the effect of subsidiary reaction with the determination of the degree of acidity. He described the formation of tri-calcium phosphate during the titration. He thought that the amount of phosphates present in the dialysates from milk would depend on the acidity of the milk, which would probably be increased during the course of the dialysis. He thought also that the amount of soluble phosphates in milk was determined by its acidity, which would influence the amount of insoluble phosphate dissolved.

Dr. J. B. Cleland asked whether it was possible to determine the age of a sample of milk from its titration figure with alkali.

Dr. R. Greig Smith pointed out that citrates were present in milk, and might influence the results obtained and their interpretation. He asked at what temperature calcium citrate was precipitated, and what was its solubility.

Professor J. D. Stewart asked whether the deposit obtained by spinning was similar to separator slime.

Another member pointed out that filtration through porcelain was not simply a process of separation. If milk was passed through porcelain in small quantities the results of titration were quite variable. These discordant results were due to adsorption, and dependent on the amount of surface brought into contact with the milk.

In reply, Dr. H. G. Chapman stated that it was not possible from the titration figure to tell the age of the milk. As soon as the acidity figure had risen over 20 it was possible to say that the milk was becoming acid from formation of lactic acid. The deposit examined by Mr. Wardlaw differed considerably from separator slime. Separator slime was the residue from a large quantity of milk, while the deposits tested by Mr. Wardlaw were obtained from small amounts of milk.

Dr. J. Burton Cleland opened a discussion on the epidemic of cerebro-spinal meningitis. He pointed out that there were five types of meningitis, not counting the tubercular form. In the first place he dealt shortly with the pneumococcal form. The symptoms were very similar to those of the epidemic form. In the next place there was the form due to a hæmophilic organism like Pfeiffer's influenza bacillus. These cases were often indistinguishable from cases of true epidemic cerebro-spinal meningitis. The third form was due to a streptococcus. He spoke of a case which had occurred in Sydney recently, and in which Dr. A. Palmer had made a post mortem investigation. Smears from the lungs contained pneumococci, but the cerebro-spinal fluid and meninges yielded streptococci. The infection had been traced to an oral infection. The fourth form was due to the gonococcus, which, as was well known, could infect any organ of the body. The fifth form was due to the *meningococcus intracellularis*. He called attention to some points of interest in the ætiology of this affection. The disease had existed for a considerable time in the various camps in Europe. Some six or eight months ago, it had appeared in New Zealand and Australia in sub-epidemic form. Previously there had been a regular occurrence of single sporadic cases, and he therefore questioned whether the epidemic now raging was traceable to infections from Europe, or whether the organism causing the single cases had taken a special form of virulence and infectivity. Many persons were infected by the coccus without manifesting the disease. If the coccus was very widely spread under ordinary conditions, it would follow that it had undergone a marked change or the conditions of the community had been subjected to change. Large numbers of men were congregating in camps, and especially in tents. It was known that a non-pathogenic bacterium could acquire pathogenic properties in the course of time by repeated passage through the human organism. He suggested that this was true in the case of the gonococcus, and also in other instances. He pointed out that the close grouping together of individuals in camps sufficed to give the meningococcus an opportunity of rapid and repeated passage through the human body, and thus of undergoing mutation.

The disease appeared to him to be a toxæmia, since the early signs were general rather than localized. He instanced the sudden onset, the early development of the purpuric rash and the absence of meningeal irritation at first. Rigidity of the neck muscles, headache and stabismus followed later. He also spoke of the pan-ophthalmitis, which was frequently seen in cases of epidemic cerebro-spinal meningitis. This symptom suggested to his mind that the disease might be a septicæmic process, although he was unable to suggest how the organisms became localized in the meninges. The likeness to plague in this respect was striking. Another simile was drawn between cerebro-spinal meningitis and pasteurellosis of rabbits. In this condition, rabbits herded together for a considerable time became infected, and once the epidemic was established it went on rapidly, until the whole batch died out. Carriers of pasteurella were met with in horses. He also drew an analogy between cerebro-spinal meningitis and lobar pneumonia.

In regard to prophylaxis and treatment, he referred to vaccines, which he considered might be worth trying, especially as they did not appear to do harm under any conditions. He thought that they were likely to produce antibodies of some form, although he doubted whether the antibodies would have any direct effect on the meningococci themselves. In the next place, there was Flexner's serum and other sera, including normal serum. The experience in Europe appeared to be unfavourable to sera. In the last place, he spoke of soamin and other chemical preparations. He failed to understand how these substances could act, and it was well not to expect anything from this form of treatment. In regard to eucalyptus, the evidence of any protective or curative action was entirely wanting.

Owing to the lateness of the hour, the discussion was limited to very brief remarks by a few members. Dr. Cooksey suggested that the spread of the disease might be favoured by the herding together of the soldiers. The conditions were unfavourable to the general health, more especially as the men were all in a state of nervous excitement. He also suggested that inoculations might have a lowering effect on the power of resistance.

Dr. Burton Bradley gave a brief account of some bacteriological investigations which he had undertaken on meningococcus carriers. He had studied five cases of an affection known as "Liverpool throat" or camp cough. Two of the patients came from camps, one had been a considerable time in barracks, and two were females who had been on intimate terms with some of the men at the camps. In all he obtained a mixed culture, in which a gram-negative organism preponderated greatly. This coccus proved to be very fragile, and in one case in which he had been able to isolate it, it gave all the characteristics of the meningococcus. He also studied the pharyngeal flora of nine patients as controls. In one only was there a considerable growth of gram-negative cocci.

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The announcement has been made in the public press that the Royal Prince Alfred Hospital has been re-opened to visitors after a period of over seven weeks' quarantine. It will be remembered that owing to the occurrence of diphtheria, scarlatina and morbilli among the patients and staff, the hospital was closed to visitors, and steps were taken to limit the infection. These steps have apparently been successful. The Board of Directors has urged the Minister for Health to provide a more efficient isolation department.

The Medical Journal of Australia.

SATURDAY, SEPTEMBER 18, 1915.

The Federal Medical War Committee.

The first step towards the realization of the plan for looking after the invalided soldiers after their discharge from the military hospitals was taken on September 10, 1915, when the Presidents of the Australian Branches of the British Medical Association or their nominees met in Melbourne and discussed ways and means for accomplishing the task to the full advantage of the soldiers. The origin and rough constitution of this body has already been announced. It will be known as the Federal Medical War Committee, to distinguish it from the Federal Committee of the British Medical Association. A report of the meeting will be found on another page of this issue. From this account it will be seen that the constitution of the Committee is more accurately defined than it was when the Federal Parliamentary War Committee drew up the preliminary scheme. The duties of the Committee have been laid down on broad lines. Its object is to act as an intermediary between the working committees in each State and the semi-official body, the Federal Parliamentary War Committee, and to coördinate the work to the best advantage of the recipients of the medical benefit and of those actually carrying out the supervision of the patients.

At first sight the reference of the Committee might be interpreted as including the guidance of medical treatment of the soldiers after they had passed out of the hands of the physicians and surgeons of the military hospitals. This, however, is not the case. The general idea underlying the scheme is that men who are temporarily or permanently disabled and who, in consequence of the injuries received during service with the colours, cannot command a living wage in the ordinary industrial or commercial walks of life, will be taken care of under skilled medical supervision, and trained to some calling by means of which they will again be able to support themselves and possibly those dependent on them. The blind, the paralysed, those whose mental condition has suffered from the fearful strain inseparably associated with modern warfare, and the maimed will require more than ordinary care to lessen the inexorable hardships of mundane existence. Assistance will be afforded by men specially trained in teaching the afflicted, and all the ingenuity, which science, business methods and compassion can exercise, will be placed at the service of these patients.

The practitioners, who have undertaken the duty of supervising the training or of guiding the after-treatment, will act under the control or direction of the State Medical Committees. The latter bodies will have no easy task to perform, and the members will be required to make very considerable sacrifices of time and energy in the service of these unfortunate, disabled soldiers. In approaching the work, these committees may be tempted to have consideration only for the immediate conditions, and may feel disposed to work independently of the committees in the other States. But it must be remembered that the problem is at least a federal, if not an imperial, one. Consideration of local circumstances must not be allowed to interfere with the carrying out of a uniform plan of working, and if ever a federal spirit were required in connexion with a piece of work, it is needed in the present instance. Business men realize that success in a commercial sense is dependent on careful organization of the various departments of the venture, and a full and proper coördination of these departments. If the work of the State Medical Committees is to be successful to a full degree, ample use of the Federal Medical War Committee must be made, in order that local interests and small issues may disappear, and that the disabilities of the soldiers who have served the Commonwealth and the Empire and have carried misfortune away from the battlefield, may be neutralized to a great extent. Uniformity of success depends on coördination.

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DISPENSING BY MEDICAL PRACTITIONERS.

The members of the medical profession throughout Australia have attested to their readiness to provide medical attendance on the sick and wounded soldiers after discharge from the military hospitals. Whether payment should be accepted or not for

these services has been a matter of some difference of opinion, but unanimity exists in regard to the necessity of the provision by the Government of dressings and medicines. The Federal Authority has suggested that the sum of 5s. should suffice for this purpose for a period of six months. The question may be asked: who is to dispense the medicines, for which the Federal Government pays? There can be no two opinions as to the advisability of handing over all dispensing to pharmacists. The principle involved has been recognized for many years, but in practice a certain amount of difficulty is likely to be experienced. In the instance referred to, the patients, that is the invalided soldiers, will be in their country homes, often a considerable distance from a pharmacist. The medical practitioners in the majority of country districts within the Commonwealth are in the habit of dispensing medicines for their patients, and have carried this work out satisfactorily. It must be remembered that the practice of dispensing has been undertaken by medical men, not from choice, but from necessity. The practice has become complicated by two considerations. In the first place, the medical practitioner is a professional man, and should not lower the practice of his profession by engaging in trade. The sale of medicines is a trade, pure and simple, and it is not dignified for a doctor to be dependent on profits made by selling bottles of medicine to his patients. On the other hand the patient in country districts especially is often ill-disposed to pay a pharmacist as well as a doctor. Patients are prone to regard the aim of the practitioner to be the exhibition of a drug in the treatment of the disease, and the average patient of the little educated class holds that a doctor is paid for the medicine he gives, and not for his knowledge and skill in guiding the treatment of disease, in making a correct diagnosis and in adopting measures for the safety of the patient and those in immediate contact with him. The community must therefore be educated before the practitioner can afford to give up dispensing. The sooner this education is accomplished, the better for all concerned.

Several years ago it was suggested that the medical practitioners and the pharmacists in England should enter upon an agreement that the former should cease to dispense and the latter to prescribe. This arrangement was not effected, because the mass of country practitioners and of rural and suburban pharmacists feared that a financial loss would be entailed. The promoters of the scheme were not inclined to give up hope that the understanding might be arrived at after an extended campaign, but national insurance made a short cut, albeit a one-sided one. Under the National Insurance Act, doctors are not allowed to dispense medicines for insurance patients, save in those districts where a registered pharmacist is not available. In other words, the members of the profession have been forced to give up dispensing to a great extent, if not wholly, without having obtained a *quid pro quo* in the form of an undertaking from the pharmacists that they would give up prescribing.

The conditions in Australia are less favourable for the introduction of voluntary or compulsory prohibition of what we might call mutual poaching on the part of the two callings. But no medical man can close his eyes to the fact that medical practice, or at all events prescribing, possibly without a preliminary diagnosis, by a pharmacist is extremely detrimental to the public interest, and a dangerous practice. It would therefore be advisable if the profession were to take into consideration the whole question of dispensing by doctors and prescribing by pharmacists before the authority takes the bull by the horns and issues a legislative prohibition, which may be less advantageous to both parties. After a period of preliminary educating the public, the representative bodies of the medical profession and of the pharmacists might confer, in order that a practical scheme might be evolved.

THE REPRESENTATIVE MEETING.

Members of the British Medical Association will read with deep interest the account published in the supplement of the *British Medical Journal* of July 31, 1915, of the Annual Representative Meeting held in London on July 23 and 24. The protocol contains two items of special importance. The first of these is the formation of a War Emergency Committee, and the second the recommendation to the Council to consider the advisability of establishing a medical fund for the purpose of helping those practitioners who had been serving in the Army and Navy.

The calls made on the medical profession throughout the Empire during the early months of this year

have disturbed the normal course of civil practice to an increasing extent up to the present time. In Great Britain and Ireland the conditions differ considerably from those obtaining in the Commonwealth. Not only is the population a large one, and the urgency of providing a medical service for the non-combatant portion of the community great, but the economic conditions are less favourable. At the outbreak of war, resolutions were passed by every Branch in Australia affirming the principle that the interests of medical practitioners joining the expeditionary forces should be guarded by their colleagues until their return. From the discussion on the second proposal, it appears that this principle was less extensively given effect to in the old country. In response to the call, upwards of 25 per cent. of the practitioners in Australia have laid aside for the time being the accustomed work of tending to the civil population, and have placed their services at the disposal of the military authorities. The sacrifice has been great in numerous cases, but the men have had the comforting feeling that in the long run they would not regret having done their duty. In the British Isles practitioners have hesitated to take up duty under the flag because the sacrifice was too great. Income had to be foregone and often capital had to be encroached upon. The rate of remuneration is wholly inadequate for professional men, and as Dr. Hawthorne pointed out, the smaller the practice, the greater the necessity for the practitioner to remain at home. In Scotland an effort was made at a comparatively early date to organize the profession in order that the work on hand might be carried out as economically as possible. It was felt that by keen adjustment, the available units of the profession might be fitted into the conditions created by the war, and both the military and the civil needs covered without undue overwork and over-sacrifice. In England, Ireland and Wales, the haphazard method of every man for himself obtained, until the Representative Body set on foot a plan for the purpose of "using every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use." As the drain was felt in the Commonwealth consequent on the ever-increasing numbers of men joining the Army Medical Services, the same expedient was adopted, and each State, at the instigation of the Federal Committee of the British Medical Association, started an organizing effort to assist the country in a difficult task. The data collected in various States in Australia have reference to a very large proportion of the members of each Branch. In Great Britain, nearly 75 per cent. of the men have given the information desired of them for the purpose of a war register being set up.

It will thus be seen that in spite of the differences of the fundamental conditions, there is a marked similarity in the manner in which the members of the Association in the old country and those in the Commonwealth have attacked the problem. The latest development of the question in this country places the profession in a better position to organize itself to good advantage. In England, Scotland, Ireland and Wales, the Government is not disposed to place full confidence in the British Medical Association, and to recognize a Committee of this Association as the proper body to undertake important national duties.

QUEEN'S MEMORIAL INFECTIOUS DISEASES HOSPITAL.

A deputation, consisting of the Chairman of the Board of Management of the Queen's Memorial Infectious Diseases Hospital, Fairfield, Victoria (Councillor Smith), Dr. Amess and Councillor Coulson, waited on the Premier on September 3, 1915, for the purpose of bringing to his notice the fact connected with the estimates of the Board for the ensuing year. It will be remembered that Mr. Drysdale Brown, the Minister for Health, on the advice of two gentlemen, reduced the estimates, on the ground that the anticipated expenditure was excessive, and notified the Board that the members would be required to pay out of their own pockets all moneys spent in excess of the amount of the amended estimates. Mr. Drysdale Brown was present.

The position of affairs was explained fully to the Premier (see *The Medical Journal of Australia*, August 7, 1915, p. 127, and August 21, 1915, p. 177). The Premier suggested that the Board should proceed with the year's work on the estimates as amended by the Minister, but if this sum be found insufficient, that a supplementary estimate be submitted. We are informed that the Minister has expressed his regret to the Board for having threatened the members in regard to the payment of any expenditure in excess of the amended estimates. The hospital work will be conducted to the best advantage of the patients, and the Board has now received a guarantee that the necessary expenditure will be met by the Treasury. Thus ends an unfortunate, but instructive incident. If the State accepts the responsibility of providing hospital care and treatment for any defined class of patients, it becomes incumbent on the Minister for Health to have reliance and confidence in the persons constituting for the time being the board of management. Where friction exists, satisfactory results become quite impossible, and, in the event of trouble, the Minister is liable to find himself isolated. The Government elected the members of the Board of Management of the Queen's Memorial Infectious Diseases Hospital, and, after having placed these gentlemen in a position of trust, it was a very unwise action to obtain an outside criticism of the estimates prepared by them. Moreover, the Minister would have contributed to the utility of the institution for which he was responsible, had he taken the view that patients removed to a hospital for notifiable diseases under compulsion should be properly fed and made as comfortable as circumstances permit. The estimates submitted to him are, in our opinion, not extravagant, and had the Minister attended a meeting of the Board and discussed with the members the reasons for the various increases, the public would have heard nothing about the whole matter. This

episode illustrates one of the disadvantages of the State control of hospitals.

ANTI-MENINGOCOCCAL SERUM.

At the fortnightly meeting of the Committee of the Brisbane General Hospital, held on September 8, 1915, the Secretary announced that the supply of anti-meningococcic serum had been exhausted, and that it was not possible to obtain further quantities of this serum. He suggested the employment of antitoxin of diphtheria as a substitute, on the ground that it had been stated that, in the absence of the specific serum, good results could be obtained by the use of this substance. A considerable amount of confusion appears to exist in regard to the therapeutic agents employed in the treatment of epidemic cerebro-spinal meningitis. Jochmann, Ruppel, Kolle and Wassermann, among others, have introduced sera gained by the immunizing of horses with various strains of the meningococcus. It is now held that these sera have no specific action, either in preventing or in curing the disease. Flexner experimented with extracts of the bacteria, and obtained a serum which was bactericidal; he claimed that it was antitoxic to the endotoxins of the meningococcus. While conducting his experiments, Simon Flexner recorded that normal horse serum, and therefore diphtheria or tetanus antitoxin, or rather the serum holdings of these substances in solution, possessed properties bactericidal to the meningococcus. There is no experimental or clinical evidence to justify the assumption that this bactericidal action is of value in the treatment of the disease. We assume that the anti-meningococcal serum referred to is Flexner's serum.

THE FEDERAL MEDICAL WAR COMMITTEE.

Disabled Returned Soldiers.

Under the scheme of the Federal Parliamentary War Committee of August 25, 1915, for the constitution of Medical Committees in the several States co-ordinated by a Federal Medical Committee, for the purpose of restoring to industrial usefulness, so far as it may be possible to do so, the large number of soldiers, who will, in the ordinary course of events, be discharged from the service maimed and otherwise incapacitated from earning their livelihood, the Presidents of the Branches of the British Medical Association were invited to meet at the Medical Society Hall, East Melbourne, on September 10, 1915. All the Presidents consented to act on the proposed Federal Medical Committee, and the meeting was duly held, under the chairmanship of Dr. Andrew Honman, the President of the Victorian Branch. The others present were: Dr. W. A. Verco, President of the South Australian Branch; Dr. W. N. Robertson, President of the Queensland Branch; Dr. R. H. Todd, proxy for Dr. George Armstrong, President of the New South Wales Branch; Dr. A. L. Kenny, proxy for Dr. Gregory Sprott, President of the Tasmanian Branch; and Dr. R. L. McAdam, representing Dr. H. J. Lotz, President of the Western Australian Branch. Mr. C. Stanton Crouch was appointed to be the Secretary of the Committee. The Hon. P. McM. Glynn, K.C., M.H.R., as representative of the Federal Parliamentary War Committee, was present during the earlier part of the proceedings.

Mr. Glynn explained the object which the Federal Parliamentary War Committee had in view in appealing to the medical profession to assist in this important work. He advised that the work of the Medical Committees in the States was to be carried out under State Councils. So far as Victoria was concerned, its State Council had already been constituted; its Medical Committee, consisting of Dr. A. Honman, Dr. A. L. Kenny, and Dr. R. L. McAdam, had been appointed; and the two bodies were already in communication with one another. State Councils were in process of formation in each of the other States, and it was hoped that the result of the meeting would be the immediate appointment of the Medical Committees for the other States.

A discussion ensued, in which the functions of the State Medical Committees were considered.

The Committee then proceeded to examine the recommendations of the Federal Parliamentary War Committee for constituting the Medical Committees; and it was finally decided to submit for the approval of the Federal Parliamentary War Committee the following amended scheme:—

"1.—A Federal Medical War Committee shall be constituted to consist of six members, one from each State, who shall be the Presidents at the date hereof, namely: ....., 1915, of the six Branches respectively of the British Medical Association in Australia, or, failing such Presidents or any of them, such other members of the Branches as may from time to time be nominated by the Councils thereof.

"2.—The names of the members of the Federal Medical War Committee shall be submitted for confirmation to the Federal Parliamentary War Committee.

"3.—The Federal Medical War Committee, immediately on its formation, shall meet and prepare recommendations and a general outline and plan of work for submission to the Federal Parliamentary War Committee.

"4.—After its first meeting the Federal Medical War Committee shall meet as required by the Federal Parliamentary War Committee, and submit its recommendations for approval by the Federal Parliamentary War Committee.

"5.—Each State shall have a separate Medical War Committee to do the work of that State, consisting of three members nominated from time to time, as the occasion may arise, by the Council of the Branch of the British Medical Association in the State; one of the three to be the member from the State of the Federal Medical War Committee. The State Medical War Committee, when constituted, shall communicate with the State Council.

"6.—The members of the Federal Medical War Committee shall have power to appoint proxies for such meetings of the Federal Medical War Committee as they may be unable to attend.

"7.—The State Medical War Committee shall be empowered to associate with itself experts, as required and approved by the State Council, representing the following interests, namely:—(*a*) Industrial Training; (*b*) Technical Training; (*c*) Teaching the Blind; and (*d*) Special Training of any kind.

"8.—It is suggested that the Defence Department shall send the disabled soldiers, immediately on their discharge from the service, or earlier, if necessary, provided that they have been finally dealt with by the Military Medical Authorities, with certificates of such discharge and statements containing full particulars of their cases, to the State Medical Committee. Where it is not possible for a disabled soldier to attend in person, such certificate and statement shall be sent to the Committee, together with such other information as may be necessary to bring the Committee into touch with him.

"9.—The State Medical War Committee shall examine the cases sent to it by the Defence Department, and make recommendations as to treatment or training to the State Council. It shall also give such subsequent supervision of the cases as it may deem necessary for the effective carrying out of such treatment or training."

A resolution was also passed to the effect that the Federal Parliamentary War Committee should be advised that the members of the Federal Medical War Committee pre-

sent at the meeting had undertaken to communicate with their respective Branches of the British Medical Association, and to invite them to constitute State Medical War Committees in terms of the recommendations; also to arrange that the State Medical War Committees, when constituted, should communicate with their State Councils with a view to entering upon their duties at the earliest possible time.

In regard to arrangements being made to enable the State Medical War Committee to do their work, it was explained that all necessary provision would be made by the State Councils. In Victoria the State Council had provided accommodation in Collins Street, Melbourne, consisting of a waiting-room for the patients, a room for conducting the examinations, and a meeting room for the Committee, together with attendance. Clerical assistance had been arranged for, for keeping the records, recording the proceedings, conducting the correspondence, and generally facilitating the work of the Committee. It was intended that a card system should be used for the case records. It was understood that similar accommodation, clerical assistance and general facilities would be provided by the State Councils in the other States.

It was arranged that in the event of the Federal Parliamentary War Committee proposing to convene a meeting of the Federal Medical War Committee, it would be asked in the first instance to communicate with Dr. A. Honman.

In the course of the deliberations of the Committee, the question arose whether the work, which the Federal Medical War Committee was asked to do, would not be properly undertaken by the Federal Committee of the British Medical Association in Australia. It was, however, unanimously agreed that, inasmuch as the position was an urgent and extraordinary one, it was better met by the formation of a special Committee.

It was resolved,—"That at all meetings of the Federal Medical War Committee three members present in person, or two members and two proxies should constitute a quorum."

In regard to the personnel of the State Councils, it was understood that they would consist of a certain number of members of the Federal Parliamentary War Committee, Members of the State Parliament, and representatives of Municipal, commercial and industrial interests and of public bodies.

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ANTI-TYPHOID INOCULATION.

The following is an abstract from a report by General Williams, dealing with enteric fever among the Australian troops in Egypt:—

> It will be of interest to the High Commissioner to learn that from the whole of the number of Australian troops landed and trained in Egypt from December 4, 1914, up to April 30, 1915, there were only three cases admitted in No. 1 and in No. 2 General Hospitals marked "enteric fever," and from subsequent clinical observations of the medical officers in charge, it could not be actually diagnosed whether these were true cases of enteric or a form of disease simulating the condition. This in itself should speak volumes for the inoculation of troops against enteric fever.
>
> Further reports will be submitted as to the existence or non-existence of this disease, either with the troops in Egypt or serving elsewhere, who have been inoculated against enteric fever. Approximately some 30,000 troops underwent this inoculation, and without any bad results, either of a temporary or more permanent nature.
>
> (Sgd.) W. D. WILLIAMS, S.G.,
> D.M.S., A.I.F.

Colonel Fetherston, Director-General of Medical Services, applied, on August 10, 1915, to the Department of Public Health, New South Wales for the views of the medical officers in regard to the value of inoculation. The Secretary of the Department sent the following letter to Colonel Fetherston on August 10, 1915:—

Sir,—

In answer to your letter of the 10th inst., with reference to the inoculation of troops against typhoid fever, I am instructed by the Director-General of Public Health to forward you the following opinion of himself and his officers.

It seems reasonable to attribute the immunity of the troops from typhoid fever for some time after reaching Egypt, to the energetic anti-typhoid inoculation campaign in Australia before leaving. The protection afforded by such inoculation, especially if three graduated doses be administered, though considerable, cannot be considered as complete. Amongst the inoculated as compared with the uninoculated, the incidence of cases which do arise should be markedly less, and the severity of the cases which do arise should be less than those arising among uninoculated troops. The medical officers of this Department, from their experience in inoculating troops, are of opinion that, though a large majority of the men were protected against typhoid fever by two or by three doses of vaccine, still, a certain number, probably small, escaped any inoculation at all, whilst others only received one dose. The men who escaped inoculation were probably those detailed for other duties at the time the inoculating staff were protecting their fellows.

Unfortunately, as yet the medical officers of this Department have no information before them indicating the number of cases of typhoid fever which have occurred amongst Australian troops in Egypt or Gallipoli; the severity and fatality of the cases; or whether they occurred in soldiers fully protected by three doses of vaccine, or amongst soldiers chiefly not protected at all or partly protected by one dose of vaccine. If information in this connexion could be obtained it would very materially aid the officers of this Department in fully assessing the value of this method of protection and in advising as to future procedures.

A person protected by three inoculations of anti-typhoid vaccine should show a relative immunity to the disease for a period of probably two years. After that time the relative immunity would tend to disappear, and also, at the end of the two years naturally the protection would probably be less than at the end of one year; and at the end of one year, somewhat less than shortly after the inoculations had been made.

On the information before the officers of this Department, they would emphasize the importance of fully protecting by means of three doses of anti-typhoid vaccine every individual leaving for active service. They would also suggest that enquiries should be made amongst the troops abroad for any soldiers not protected at all by such inoculations, or protected by only a single inoculation. These should, as soon as possible, be fully protected by three further doses. They would also suggest, as is now being carried out, that supplies of anti-typhoid vaccine should be supplied for the use of troops in Egypt and Gallipoli, and that in the event of any undue number of typhoid cases arising, or in anticipation of such arising at the beginning of the next typhoid season, further inoculations should be made in the case of troops already protected as far as the circumstances will permit, so as to increase the degree of immunity they still possess of their original inoculation in Australia.

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THE TOBACCO FUND.

Through the kindness of Dr. R. P. Hill, of Isisford, Queensland, the following contributions to the Tobacco Fund have been collected:—

Amount previously acknowledged, £5 18s. 6d.; Mrs. Brown, £1; Mrs. Bucknell, 10s.; Mrs. Connell, £1; Mrs. Dowie, 10s.; Mr. Germain, £1; Mrs. Harding, £1; Nurse Hayes, 10s.; Master John Hill, £1; Master Ronald Hill, £1; Nurse McDonald, 10s.; Miss Stevens, £1; Mr. Sutherland, £1 (all of Isisford). Total: £16 18s. 6d.

Abstracts from Current Medical Literature.

PATHOLOGY.

(107) Bronchial Spirochaetosis.

J. W. S. Macfie has described two cases of bronchial spirochaetosis from Accra, in the Gold Coast Colony, West Africa (*Journ. of Trop. Med. and Hygiene*, March, 1915). Both the patients were male natives. The first case had an acute onset, with high fever and the physical signs of pneumonia on the left side. The illness ran a chronic course, the temperature after the first week fluctuating from 99° F. to 101° F. The duration of the illness was six weeks. The sputum was abundant and yellow. It contained spirochaetes in large numbers, but neither pneumococci nor tubercle bacilli. The second case had a more acute course. He was admitted on the fourth day of illness with fever, pain in the side and the physical signs of pneumonia at the left base. On the fifth day after admission his temperature fell rapidly to normal. The sputum was slightly rusty, but never characteristic of pneumonia. Spirochaetes were easily detected in it. Pneumococci were absent from the sputum. The blood examination revealed no evidences of malarial infection. The spirochaetes are of uniform type, 8 microns in length, with three or four spirals. Spirochaetes indistinguishable from those found in the sputa from these patients have been found in the mouths of healthy natives. It is suggested that the disease of the bronchi and lungs may have been due to the invasion of these organs by the spirochaetes.

(108) Transmission of Kala-Azar to Animals.

F. P. Mackie (*Indian Journ. Med. Research*, April, 1915) has infected monkeys, flying-foxes, dogs and white mice with kala-azar by intra-peritoneal inoculation. The production of the disease is very uncertain, as many animals escape infection. Any attempt to prove the infectivity of suspected material by inoculation into animals is apt to be fallacious, unless a sufficient number of animals is inoculated. Experiments of feeding large quantities of freshly removed and highly infected spleen substance from human subjects were uniformly negative. Young cats and goats were able to resist enormous doses of virulent material by intraperitoneal inoculation. These animals may therefore be considered to be naturally immune. The microscopical examination of the spleens of one hundred dogs selected from villages infected with the disease have failed to reveal Leishmania. Inoculations of the bone-marrow from these dogs were likewise invariably negative. The intestinal mucus from many patients in various stages of the disease was administered to monkeys and dogs, but these animals did not develop kala-azar. The intestinal contents of 3,673 verminous insects were inoculated into eight monkeys, but none of the animals became infected. Material from cutaneous ulcers in patients from the infected areas has not proved infective to animals, nor has Leishmania been discovered by microscopical examination in scrapings from these ulcers.

(109) Parasiticism and Eosinophilia.

D. E. Paulian, who has brought forward evidence to demonstrate that the nervous symptoms produced by intestinal worms are caused by the toxins, secreted by the worms, giving rise to a condition of anaphylaxis, has examined the production of eosinophilia in patients suffering from worms (*C.R. Soc. Biol., Paris*, April, 1915). He has found that the injection of toxins from a tape-worm, *T. cucumeria*, and from three round worms, *Ascaris megalocephala*, *Oxyurus vermicularis* and *Tricocephalus dispar*, has given rise to the following changes in guinea-pigs. They have rapidly lost 100 gm. in weight, while their temperature has been increased 1.3° C. A leucocytosis has occurred, in which the mononuclear forms have predominated. An intense eosinophilia has developed, which attained its maximum on the third or fourth day after the injection. By continuing the injections, a lasting eosinophilia has been brought about. In this condition, 44% of the leucocytes have contained coarse eosinophile granules. He concludes that the toxins have sensitivized the organism and led to a state of anaphylaxis, of which the eosinophilia is one manifestation.

(110) The Bacteriology of Wounds.

T. H. Just has studied the bacteriology of a number of wounds received during the fighting on the Marne and the Aisne, and examined in the No. 12 General Hospital at Rouen (*Journ. R.A.M.C.*, December, 1914). The wounds were divided into two classes, *viz.*, those in which very little destruction had been inflicted by shrapnel balls or rifle bullets, and from which only a small amount of sero-purulent discharge issued, and those inflicted by fragments of shells or jagged fragments of the cases of shrapnel. From the former, staphylococci and *bacilli coli* were grown, but no anaerobic bacteria. The *Staphylococcus epidermidis albus*, as well as *aureus* and occasional streptococci formed the chief aerobic organisms. A large Gram-positive bacillus was the most characteristic anaerobic bacillus found in the second class. This bacillus exists in earth. It produces an offensive odour of the discharge of the wounds, and gives rise to sloughing. That the sloughing is due to this anaerobe is suggested by the rapid clearing which follows the use of hydrogen peroxide. He calls attention to the fact that with the exception of one or two cases of wounds in the hands, all these sloughing wounds affected the legs or abdomen. It is pointed out that earth soiling was regarded as the probable cause of the sloughing, and this view was borne out by the fact that the British soldier washes his head, neck, arms and chest often, but the skin of the legs and abdomen may be unwashed for long periods of time. The damage to the tissues is effected chiefly by the concussion of the shell or bullet, and the bacterium plays a small part, probably because of its low virulence.

(111) Typhoid and Paratyphoid Bacilli.

G. H. Robinson (*Journ. of Med. Research*, July, 1915) considers the following subjects: (1) the development of an accurate, quick and easy method of isolating typhoid and paratyphoid germs; (2) the value of cultural and serum reactions in the identification of the cultures; (3) the proper interpretation of serum reactions obtained in the routine examination of suspected specimens; and (4) a comparison of the serum reactions produced as the result of vaccination, and those in clinical cases. He considers that the most satisfactory method of isolating the organisms from fæces is by incubation in peptone lactose bile for six to twelve hours, and then by plating on Endo's medium. The organisms are best identified by their reactions on carbohydrate media. Serum reactions are of more value with the typhoid germ than with the intermediate group. Normal blood frequently agglutinates typhoid and paratyphoid bacilli. The serum reactions during antityphoid inoculation in human persons have been carefully studied in this paper.

(112) Tumours of the Parathyroid Glands.

F. Harbitz describes four tumours of the parathyroid glands (*Journ. of Med. Research*, July, 1915). Only nine cases with tumours of the parathyroid glands are recorded in medical literature. In some of these cases the origin of the tumour was not satisfactorily defined. The first tumour, examined by the author, occurred in a woman, aged 26, who suffered from osteomalacia. The tumour was discovered during the autopsy. It was about the size of a pigeon's egg, with the histological structure of an adenoma. The epithelial cells were regular in shape, large, inclined to be acidophilic but free from glycogen. A discussion is inserted on the possibility of an association between the presence of the tumour and the occurrence of osteomalacia. In the second case three tumours of the size of peas were found in a child aged one year, who died with the symptoms and signs of rickets. The third case was that of an individual who suffered from paralysis agitans. He possessed symmetrical tumours of the parathyroid glands, which caused no local disturbance. The fourth case was that of a woman, aged 32 years, who died in child-birth. Two tumours were found associated with the parathyroid glands. The woman had enlarged thyroid lobes. Each lobe was of the size of a hen's egg. The goître had caused no disturbance of the patient's health.

PÆDIATRICS.

(113) Tuberculosis.

From a study of tuberculin tests in 1,321 hospital children in St. Louis, Veeder and Johnston (*Amer. Journ. of Dis. of Children*, June, 1915) find that the percentage of positive reactions reached a maximum of 44% at the age period of 10-14 years, including cases of clinical tuberculosis. Without these latter the percentage was only 36. These figures are considerably lower than the 90% usually quoted as the incidence of infection with the tubercle bacillus in children up to the age of 14. This percentage has been extensively referred to. It was based on the figures for Vienna. The extent of infection among children varies in different cities and countries, and is dependent on factors such as the mode of living and social conditions, the amount of tuberculosis in the community, the exposure of the child to open tuberculosis. In all probability it varies among different classes of society in the same community. No conclusions as to the extent of infection with the tubercle bacillus can be drawn from the statistics of any one city or class, and the statement that 90% or more of individuals are infected at puberty is an extreme exaggeration of the actual existing conditions. The intradermic tuberculin test has recorded but a slight increase in the percentage of positive reactions. Positive tuberculin reactions are of much service in the diagnosis of tuberculosis in infancy and early childhood, and both positive and negative reactions, in conjunction with the physical signs and symptoms, are of diagnostic value in individual cases among older children. They do not, however, indicate whether the infection is latent or not.

(114) The Prognosis of Congenital Clubfoot.

Fishe (*Journ. Amer. Med. Assoc.*, July 31, 1915) gives a careful record of the results of treatment of 115 cases of congenital clubfoot admitted to hospital during a period of five years. All the patients had received not less than twelve months' treatment. Operative procedures consisted in various tenotomies, fasciotomies and osteotomies, with retention of the foot in plaster in the corrected position. Non-operative treatment consisted in manual manipulation of the foot, working slowly on all the contracted and distorted structures, with subsequent retention in plaster at intervals of three weeks. After over-correction, braces were used, especially in children old enough to walk. The author gives the following summary of his findings: (1) There are three factors in the prognosis of congenital clubfoot; the age and rigidity of the foot, neglect, and the method of treatment employed. Of these, the last is the one controllable and predicable factor. (2) Other things being equal, a favourable prognosis is proportionate to the flexibility of the foot, which is usually in direct proportion to the age of the child. (3) Absolute over-correction of the foot, and unremitting attention to the maintenance of this position until the structures have become permanently readjusted are essential. (4) The deformity being shared by all the structures of the foot, that treatment only, which is not localized in its application, is productive of uniformly satisfactory results. (5) The destruction of any tissue prevents the restoration of the natural shape, strength and balance of the foot, and is prejudicial to the return of normal function. (6) The non-operative or so-called manipulative treatment of clubfoot avoids these errors in treatment and takes advantage of the plasticity and growths of the foot. (7) By the manipulative method, over-correction of the foot is rapidly and thoroughly effected, and relapse is seldom seen. (8) By the manipulative method, about twice as many cases show ultimate satisfactory results as do those treated by operation. (9) The manipulated cases are easy and practical of management, and over-confidence and carelessness are often prevented by the nature of the treatment. (10) Although the affection is rarely so severe, the prognosis for perfect result in calcaneo-valgus is not as good as in equino-varus, largely because of the delay in diagnosis, and failure to maintain over-correction.

(115) Pyloric Hypertrophy in New-born Infants.

From a post mortem study of the stomachs of 4 infants, aged 3 weeks and under, dying of atelectosis, hæmophilia, multiple hæmorrhages and congenital atresia of the bile-ducts, Wachenheim (*Amer. Journ. of Dis. of Children*, August, 1915) suggests that pyloric thickening, if not universal, is present in the majority of new-born infants. The pylorus in the 4 patients mentioned formed an obviously thickened mass, the walls being about 4 mm. in diameter, with an apparently normal lumen. It projected into the duodenal canal very much in the manner of a cervix uteri, and as described in cases of true pyloric hypertrophy. In only one of three older infants was there a slight thickening of the pyloric wall. In no case were symptoms of spasm or obstruction present. The author considers that a retrogressive change takes place normally between the third week and the third month, in the course of which the very perceptible thickening of the pylorus gives way to a condition in which the borders of that organ are macroscopically almost indistinguishable. The thickness of the pyloric wall in the normal infant of two months is 2 to 2.5 mm.; in the new-born it is greater, 3 to 4 mm.; and in established hypertrophic stenosis, fully 5 mm. Evidently the conditions in the new-born are intermediate, and it depends on circumstances whether the normal retrogressive change takes place or the thickening increases to such a degree as to cause obstruction (perhaps due to hyperacidity and consequent pylorospasm). However, the average new-born infant bears within itself the latent tendency to develop pyloric hypertrophy, and it depends on factors hitherto uncontrollable whether the stated condition develops or the pyloric wall thins out in the normal course.

(116) Acidosis.

Metcalf (*Amer. Journ. of Diseases of Children*, January, 1915) reports a series of 100 consecutive cases of illness associated with the presence of acetone bodies in the urine in infants and children, apparently in epidemic form. There were nine fatalities. The ages of the patients varied between 2 and 8 years. There were 59 boys to 41 girls. None of the homes were distinctly poor. The epidemic could not be attributed to the milk or water supplies, nor could the diet be blamed in any way. There was no history of contagion, and in 34% the patients were attacked for the first time. Onset was sudden, with symptoms of coryza, or cold, and then vomiting. The more severe the attack the greater the prostration and wasting, and the more marked the meningeal symptoms. A coated tongue, flushed face, drowsiness, and thirst were frequent during the active stages of illness. Air hunger was often present. Diarrhœa occurred in more than a third of the cases. In seven cases vomiting was absent, but normally it was a predominant feature. The temperature curves showed wide variations. Acetone was present in the urine in every case, and usually at the first tests in large amount. It seldom disappeared while the urine remained acid. Diacetic acid was present in 15 cases out of 45 tested; oxybutyric acid was found but once. Recovery was rapid in 60 cases. Sodium bicarbonate was given by the mouth, in drachm doses every hour or two, or by the rectum in half-drachm doses. When the vomiting ceased a simple diet, low in fats, was prescribed. From a study of his own and other reported cases the author considers that the acetone bodies are derived from fatty acids imperfectly metabolized in the liver; that this imperfect metabolism may be coincident with lessened sugar combustion; but that there is an immediate exciting cause for this imperfect metabolism. Sometimes an intestinal disturbance is the only obvious exciting cause. There is at times a primary poisoning from an inorganic poison, while in a third group a concomitant infection must be considered. The infectious type may be accompanied by intestinal disturbance. Acid auto-intoxication, recurrent vomiting, and cyclic vomiting are merely degrees of an acidosis, and the beneficial effects of alkaline treatment suggest that the symptoms are due to excess of acid. There is slight evidence that a special organism was the immediate exciting cause, nevertheless the prevailing respiratory affection was significant. Probably the infection was conveyed by direct contact, and was selective, and some infected children did not develop acidosis.

British Medical Association News.

SCIENTIFIC.

A clinical meeting of the New South Wales Branch was held on September 10, 1915, at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, Dr. George Armstrong, the President, in the chair.

Dr. H. S. Stacy read the notes of a case of Jacksonian epilepsy. The patient was a single female, aged 20. She was admitted to the Sydney Hospital on May 26, 1915. She had been struck on the head with a bottle, and was unconscious for about a week. Shortly after she began to suffer from fits. She was unconscious for several hours during these attacks. They occurred at intervals of about six weeks. About a year later her skull was trephined. The fits persisted, although the interval was occasionally longer.

The fit was usually preceded by giddiness lasting for several days. There was no signal symptoms. The muscular power and sensation were not impaired. According to her friends, she was very irritable and bad tempered; they found it very trying to live with her. She had been under medical treatment for some time, but no apparent improvement had resulted.

Dr. Stacy saw her first with Dr. McMaster, and it was determined that an exploratory craniotomy should be performed in order to ascertain the state of the *dura mater* and of the cerebral cortex.

The operation was performed on May 28, 1915. An osteoplastic flap over the right Rolandic area, and anterior to it, was prepared and turned down. This area corresponded to the site of the injury. The *dura mater* was exposed for a considerable area, and reflected. At one spot a hæmorrhagic cyst was found beneath the dura. Corresponding to this cyst the cortex was depressed. The *dura mater* was adherent to a considerable area of the cerebral cortex. The *pia mater* and *arachnoid* were semiopaque. A portion of the *fascia lata* was removed from the thigh and fixed beneath the separated dura by means of a few cat-gut sutures. The trephined discs and flap were replaced, and the scalp sutured.

The patient suffered little or no shock from the operation. She had a convulsion during the night following the operation. With the exception of headache, which persisted for a couple of weeks, she made an uninterrupted recovery.

The patient's temper improved very considerably; in fact Dr. Stacy considered that it had become normal. She had had but one fit since the operation, a severe one. He regarded the period of time since the operation as too short to be certain of the success of the treatment. Relief had certainly been given to her, and to her friends.

Dr. Stacy pointed out that according to Murphy's teaching the duration of unconsciousness should be regarded as an indication of the extent of the injury. When prolonged unconsciousness followed a head injury, it was essential that complete rest be enforced for a considerable time in order that the exuded lymph might be absorbed. It was held that the symptoms in these cases were produced by the adhesions between the *dura mater* and cerebral cortex.

In the discussion, Dr. C. W. Reid mentioned that he had seen the girl some time before. She did not have many fits, and at times the interval was as long as eight months. He had been asked to certify her as insane on the ground of her delusions of suspicion, and suicidal tendency. In view of the traumatic nature of the lesion he had come to the conclusion that it was in the interests of the patient to advise surgical treatment. The effect of the operation was highly satisfactory, and her mental condition had improved greatly.

Dr. E. H. Binney had been very impressed by Dr. Stacy's account of the history of this patient, and was quite prepared to believe that the improvement was the result of the surgical intervention. On the other hand, he wished to point out that in many of these cases a considerable improvement followed immediately on the operation, as a result of the not inconsiderable hæmorrhage. He pointed out that trephining was sometimes carried out because indications existed; it was sometimes carried out as a chance operation, in the hope of some improvement following, and it was sometimes carried out because a wish was expressed that something should be done. In the majority of the cases an immediate improvement was noted, which he was convinced was referable to loss of blood, and had nothing to do with the manipulation of the membranes.

In his reply, Dr. Stacy remarked that he had forgotten that Dr. Reid had been consulted by the patient's friends. He too had been asked to certify her. The patient had been taking bromides for years; since the operation she had not been given any. In regard to Dr. Binney's suggestion about the effect of bleeding, he was prepared to agree in general, but he pointed out that in this particular case the improvement could not be attributed to loss of blood. In the first place the interval since the operation was too long, and in the second there had been very little bleeding, as he had used a tourniquet.

Dr. Charles Ayres demonstrated the Coolidge X-ray tube, and read a paper in which this tube was described. It is proposed to publish this paper in a subsequent issue of the Journal.

Dr. F. Guy Griffiths handed round some pictures of versical calculi having the composition CaC_2O_4 $CaCO_3$, as well as the calculi themselves. These calculi had been sent to him by his brother, Dr. Griffiths, who was serving at the front. They had been removed from the bladder, and were regarded as being of a rare kind. The history of the case was given as follows:—The patient was a Belgian, aged 70 years, who had died of pneumonia two days after admission to a hospital in France. No history of the illness was obtainable.

The post-mortem examination was conducted on May 30, 1915. In the lower two feet of the ileum enteric fever ulcers were found. There was swelling, sloughing, and injection of the peritoneum. The ulcers corresponded to the third week of an attack of entric fever.

The mesenteric glands were affected by tuberculosis, and were enlarged.

In the lungs there were old tubercular foci at the apices of both upper lobes. General emphysema was present. On the left side there was a condition of hypostasis, and two inches below the apex of the right lower lobe there was consolidation (grey hepatization), with an area of surrounding œdema. The lower lobe of the right lung was airless. There was a left-sided pleural effusion. A condition of anthracosis was noted affecting the interbronchial glands.

A round worm was found in the œsophagus.

The heart showed fatty fibroid changes, and there was arteriosclerosis of the coronary arteries.

The left kidney was in a condition of pyelonephritis, and the ureter was dilated. There was hypertrophy and sacculation of the bladder, with a hernia at the apex. The prostate was enlarged, and there was an adenoma at the urethral orifice. Six calculi, consisting of a central body and stellate spicules radiating in all directions were found in the bladder. There was bilateral hydrocele.

Cultures made from the bile revealed the presence of Eberth's bacillus.

Dr. Griffiths pointed out that the adenoma of the prostate was presumably a so-called enlarged middle lobe. The calculi appeared to have been lying in a pocket of residual urine.

Dr. R. B. Wade read the notes of the following cases:—

(*a*) Congenital obliteration of a portion of the intestine.
(*b*) Rarefying osteo-myelitis; probably a condition of metastasis from a septic arthritis.
(*c*) Perforating wound produced by a pea-rifle.
(*d*) Double perforation of the colon, due to the kick of a horse.

The details of these cases will be published in a subsequent issue.

He also exhibited a portion of a shell case found on the Emden. The fragment had been found resting on a sailor's head, and was presumably a result of the Sydney's shooting.

In the account of Dr. Flynn's remarks during the discussion on Dr. Thring's paper dealing with malignant disease of the lower bowel (see *The Medical Journal of Australia*, September 11, 1915, p. 255), a sentence has unfortunately been omitted, and by this omission his remarks have be-

come unintelligible. He pointed out that when obstruction was present immediate suture should not be performed, whereas in the absence of obstruction this course might be undertaken with a reasonable prospect of success. In those cases in which obstruction was present the surgeon should attempt to relieve the symptoms by performing a preliminary colostomy, and removing the growth at a later stage.

From the researches of Jamieson and Robson it is known that the lymphatic drainage of the large bowel follows a definite orderly plan. These authors have not indicated how often or in what percentage of cases glandular metastasis takes place. Turning to the results of *post mortem* examinations, made in cases of carcinoma of the large intestine, Hausmann records that out of 112 cases the disease became generalized in 21, whereas in 91 cases it was limited to the bowel wall, or did not extend beyond the paracolic group of glands. Butlin computed that over 50% of persons affected with colic cancer died from obstruction of the bowel before glandular metastasis developed. Mayo Robson found that cancer of the colon, even when advanced, remained limited to the bowel in over 40% of cases.

Similarly in rectal cancer, it would not be judicious to apply the same rule as was applied in cancer of the lip or cancer of the tongue. Dr. Flynn emphasized the fact that there were three routes by which rectal cancer spread. First, dissemination to the liver; second, local extension; and third, extension of the lymphatic. Statistics showed that this was the order of frequency, and consequently that an operator too intent on lymphatic drainage might do a useless operation. Expressed in different words, he pointed out that rectal cancer did not always travel in the route that *a priori* anatomical knowledge of the lymphatic drainage would lead one to expect. It was therefore necessary not to perform an operation as a matter of routine solely on the basis of this knowledge.

Dr. Guy Griffiths informs us that in the same discussion he had no intention of drawing a comparison between the work of Ernest Miles and the researches of anatomists. He stated that there was no need to rely solely on pathological research on the lymphatics when these structures had been elaborately examined from an anatomical point of view. The best account of the anatomy of the lympathic system was published in Poirier's Anatomy.

BELGIAN DOCTOR'S RELIEF FUND.

South Australia.

Dr. Lendon, the Honorary Secretary of the South Australian Branch of the Belgian Doctor's Relief Fund, has intimated to us that the fund is now closed. Appended is a final list of subscribers and statement of the receipts and expenditure. It will be seen that the sum of £527 has been forwarded to London, and that the expenses amounted to only £3 18s.

	£	s.	d.
Amount previously acknowledged	503	6	6
Dr. Bickle, Adelaide (second donation)	1	1	0
„ Birks, M., Broken Hill (fourth and fifth donations)	1	11	6
„ Burden, F., Henley Beach (including dinner subscription	1	11	6
„ Erichsen, M., Pinnaroo	1	1	0
„ Gardner, J. F.	3	3	0
„ Lamb, W., Hummock Hill (fourth donation)	1	1	0
„ Magarey, Cromwell, Norwood (fourth and fifth donations)	6	6	0
„ Player, C. E., Mallala	1	1	0
„ Plummer, Violet, Adelaide (fourth donation)	1	1	0
„ Purves, C. W., Eudenda (fourth and fifth donations)	3	3	0
„ Sangster, J. J., Glenelg (fourth and fifth donations)	1	1	0
„ Stokes, A. F., Glenelg (for July)	0	10	6
„ Verco, J. C., Adelaide (fifth donation)	5	0	0
Total	£530	18	0

Financial Statement.

RECEIPTS.

	£	s.	d.
Subscriptions	529	11	6
Interest, Savings Bank	0	4	6
Balance (being an anonymous contribution)	1	2	0
	£530	18	0

EXPENDITURE.

	£	s.	d.
Cabled to London	527	0	0
Expenses, *viz.*, Stationery, Stamps and Exchange	3	18	0
	£530	18	0

Public Health.

INFECTIVE DISEASES IN VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending September 9, 1915:—

	Metropolitan.		Rest of State.		Total.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria	61	2	20	0	81	2
Scarlatina	8	0	9	0	17	0
Enteric Fever	1	1	1	0	2	1
Pulmonary Tuberculosis	15	6	9	4	24	10

The following is a return of the cases of epidemic cerebro-spinal meningitis notified to the Board during the week ending September 2, 1915:—

	Metropolitan Area. Cases.	Rural Districts. Cases.	Totals. Cases.
Military	—	—	12
Civil	18	13	31

The number of rural districts affected was 16.

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending September 4, 1915:—

Disease.	No. of Cases.
Diphtheria	32
Varicella	25
Pulmonary Tuberculosis	9
Scarlatina	10
Enteric Fever	4
Cerebro-Spinal Meningitis	5
Malaria	3
Erysipelas	2
Ankylostomasis	1
Total	91

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the three weeks ending August 28, 1915:—

	Enteric Fever. Cases.	Diphtheria. Cases.	Scarlatina. Cases.	Pulmon'y T'b'c'losis. Cases.	Erysipelas. Cases.
Cottesloe	—	—	—	1	—
Claremont	—	1	—	—	—
Subiaco	—	4	1	—	1
Perth	—	10	—	5	—
Midland Junct'n	—	1	—	—	—
Coolgardie	—	1	—	—	—
Bunbury	1	—	—	—	—
Coolup	—	1	—	—	—
Comet Vale	—	—	—	—	1
Geraldton	—	—	—	1	—
Toodyay	—	1	—	—	—
Bayswater	—	—	—	1	—
South Perth	—	1	—	—	—
Kalgoorlie	—	7	—	1	—
Boulder	—	4	—	—	—
Albany	—	2	—	—	1

	Enteric Fever. Cases.	Diphtheria. Cases.	Scarlatina. Cases.	Pulmon'y T'b'c'losis. Cases.	Erysipelas. Cases.
Westonia	—	1	—	2	—
Mackering	—	2	—	—	—
Fremantle	—	—	—	1	—
Meekatharra	—	—	—	1	—
Northam	—	1	—	—	—
Osborne Park	—	—	—	1	—
Darling Range	—	—	—	1	—
Upper Preston	—	—	—	2	—
Eulamina (Mt. Malcolm)	—	—	—	1	—
Totals	1	37	1	19	3

INFECTIVE DISEASES IN AUCKLAND.

The following notifications have been received by the District Health Officer for the month of August, 1915:—

	City. Cases.	Suburbs. Cases.	Country Districts. Cases.	Total. Cases.
Scarlatina	12	4	9	25
Diphtheria	16	9	17	42
Enteric Fever	—	5	46	51
Tuberculosis	13	9	15	37
Blood Poisoning	1	—	3	4
Poliomyelitis	—	—	1	1
Cerebro-Spinal Meningitis	1	—	5	6
Hydatids	—	—	1	1

SMALL-POX IN NEW SOUTH WALES.

The following cases of small-pox have been reported to the Department of Public Health, New South Wales, during the week ending September 12, 1915:—

	Cases.
Country—	
Newcastle	10
Scone	3
Total	13

INFECTIVE DISEASES IN HOBART.

The following notifications have been received by the Medical Officer of Health for the month ending August 31, 1915:—

	Cases.
Diphtheria	9
Enteric Fever	1
Varicella	4
Scarlatina	2
Ophthalmia Neonatorum	1
Total	17

CEREBRO-SPINAL MENINGITIS.

We are informed that, although the Department of Public Health of New South Wales has advised that epidemic cerebro-spinal meningitis should be included in the list of notifiable infective diseases, the proclamation to this effect is not likely to appear in the *Government Gazette* this week. The delay in giving effect to this recommendation is regrettable, since it will now be impossible to ascertain with any accuracy the number of cases which have occurred during the early stage of the epidemic.

In the absence of official figures dealing with the mortality from this disease in Victoria, it is impossible to make an accurate statement. From the newspaper reports, it appears that in the week ending August 30 there were 74 cases, with 23 deaths; in the week ending September 6, there were 21 cases and 16 deaths; while in the period from September 7 to September 12 there were 35 cases and 9 deaths, making a total of 180 cases, with 47 deaths, for the period from August 23 to September 12.

Naval and Military News.

Lieutenant-Colonel Luscombe, Assistant Adjutant General of the 2nd Military District, has issued the following notice concerning the officers of the Australian Army Medical Corps:—

> The officers who are on the active list of the A.A.M.C. are liable to be called up at any time for duty with the military forces of the Commonwealth. Medical officers whose names appear on the A.A.M.C. Reserve cannot be called up for duty unless they are willing, and are asked to volunteer their services with the military forces in Australia during the present crisis. Applications for service should be addressed to the Principal Medical Officer at District Headquarters. Here their names will be registered, and their services availed of as vacancies occur.

It has been announced that the Y.M.C.A. of Sydney has offered the use of its gymnasium, and the services of its physical director for the purpose of physical development of those men who have offered themselves for service with the colours, but who have been rejected. No charge will be made for the course of instruction, covering a period of five weeks. Men are required to attend from 5 p.m. to 6 p.m. on Tuesdays and Thursdays each week. The enrolling officers will issue a certificate to all applicants who are rejected because they do not come up to the physical standard. A duplicate copy is retained by the applicant, and must be presented by him at the Y.M.C.A. gymnasium, while the original is sent direct to the physical director of the Y.M.C.A.

According to the *Age*, of September 10, 1915, additional medical officers and nurses will be sent to Egypt and Europe as reinforcements at regular intervals of three months. It is suggested that a considerable proportion of junior medical officers will be included in these reinforcements, and that these men will receive training in camp before proceeding to the front. Victoria and New South Wales will provide 8 medical officers and 34 nurses each, Queensland will provide 3 medical officers and 10 nurses, South Australia 3 medical officers and 11 nurses, Western Australia 3 medical officers and 8 nurses, and Tasmania 1 medical officer and 3 nurses. The total three-monthly complement for the Commonwealth will therefore be 26 medical officers and 100 nurses.

Of the three militia officers of the Australian Field Artillery who have been appointed to command the Field Artillery Brigade which the Commonwealth Government is raising, Lieutenant-Colonel C. F. Warren is a member of the New South Wales Branch. He obtained a commission in the R.A.M.C. in 1897, and subsequently was raised to the rank of captain. In 1908 he obtained a commission in the Australian Field Artillery, with the rank of major. His promotion to the rank of Lieutenant-Colonel has just been effected.

We are pleased to announce that both Captain Espie Dods and Captain L. W. Dunlop, who were wounded in Turkey, are progressing favourably. The former is at present in the Raselton Military Hospital, in Alexandria, while the latter is being sent to England.

In a letter addressed to Lady Helen Munro Ferguson in her capacity as Chief of the Australian Division of the British Red Cross Society, Colonel Fiaschi, the Officer in Command of the 3rd Australian General Hospital, calls attention to the fact that when his hospital was ordered to Lemnos, in the Greek Archipelago, he applied for the two motor ambulances presented to the hospital by the Branches of the British Medical Association in Australia. He was informed that General Sir Ian Hamilton had issued orders that no ambulances were to be taken from England to Lemnos. In spite of repeated efforts, Colonel Fiaschi failed to obtain posesssion of these motor ambulances. He added that he was about to make a further attempt in Alexandria to obtain some form of motor ambulances. We feel sure that this action on the part of the authorities in England will be regretted by the subscribers to the Motor Ambulance Fund of the Australian Branches of the British Medical Association.

In the casualty lists published from General Headquarters in the first week of August, the two following entries affect members of the medical profession:—

> Killed: Captain M. F. Beaney, I.M.S., attached to the 1st Battalion of the 5th Gurkhas, at the Mediterranean front.
>
> Wounded: Lieutenant C. D. Roberts, R.A.M.C.

The following appointments have been gazetted:—

To be Lieutenant-Colonels—
Lieutenant-Colonel J. F. Flashman, Sydney University Scouts.
Robert Gordon Craig.

To be Majors—
Arthur Edward Mills.

To be Captains—
Captain W. L. Kirkwood, A.A.M.C.
Captain (provisional) W. Vickers, A.A.M.C.
Captain (provisional) F. H. Sabiel, A.A.M.C.
Austin Sydney Curtin.
James Thomson Paton.
Edward Hamilton Rutledge.

To be Major, with pay of Captain—
Honorary Major C. A. Edwards, Australian Army Medical Corps Reserve.

To be Captains—
Honorary Captain H. Stoker, V.D., Australian Army Medical Corps Reserve.
William James Connolly.
William Henry Weston.
Leslie St. Vincent Welch.
Keith Harvey Grieve.

The following notice has appeared in the *Commonwealth Gazette* under date of September 11, 1915:—

Army Medical Corps.

To be Honorary Lieutenant—
Rupert Purcell-Cohen.

1st Military District.

A.A.M.C.—
Frederick Samuel Thomas to be Captain (provisionally and temporarily).
Captain K. F. C. Brunnich is transferred from Australian Army Medical Corps, 2nd Military District, with seniority as from date of transfer.

A.A.M.C. Reserve—
Ewing George Thomson to be Honorary Captain.

2nd Military District.

A.A.M.C.—
Edward Herrick Knowles to be Captain (provisionally and temporarily).
Captain K. F. C. Brunnich is transferred to Australian Army Medical Corps, 1st Military District, with seniority as from date of transfer.

A.A.M.C. Reserve—
Walter Cecil McClelland to be Honorary Major.
Stewart Miller Beattie and Geoffrey Morris to be Honorary Lieutenants.
Honorary Captains A. Macinnes and R. J. N. Whiteman are transferred to Australian Army Medical Corps, and to be Captains (provisionally and temporarily).

3rd Military District.

A.A.M.C.—
John Victor Hume Guest, Neil Hamilton Fairley, Donald Dunbar Coutts, Herbert Shine Forrest, Thomas Alfred Wright, Eric John Kerr, and Crawford Clelland Marshall to be Captains (provisionally and temporarily).

A.A.M.C. Reserve—
Eustace Julian Keogh, Miles Charles Cariston Seton, Leslie Scott Latham, Thomas Ernest Green, Hibbert Alan Stephen Newton, and Michael Brendan O'Sullivan to be Honorary Captains.
Honorary Captain W. Sloss to be Honorary Major.
Honorary Lieutenant W. L. Aitken to be Honorary Captain.
The appointment of Thomas Frederick William Hall to be Honorary Captain, which appeared in Order in Council No. 349, promulgated on page 960 of *Commonwealth of Australia Gazette*, No. 41, of 22nd May, 1915, is terminated.

4th Military District.

A.A.M.C.—
Lieutenant-Colonel H. H. E. Russell to be Principal Medical Officer (temporarily), with pay of rank, *vice* Lieutenant-Colonel A. E. Shepherd, seconded from the appointment for duty as Deputy Director-General Medical Services.
Leslie Gemmel Tassie and William Hamilton to be Captains (provisionally and temporarily).

A.A.M.C. Reserve—
Ernest Lincoln Borthwick, Joseph Woods Clayton, John Victor McAree, John Bernard Gunson, John Eric McGlashan, Hubert Melville Jay, and Hampden Carr to be Honorary Captains.
Alfred Swaine Randell to be Honorary Lieutenant.
Honorary Captain C. L. Clarke to be Major (temporarily).
Captain A. H. Bennett is transferred from the Unattached List, and to be Honorary Major.

6th Military District.

A.A.M.C. Reserve—
George Musgrave Parker, Thomas Herbert Goddard, and Edwin Marston Allester to be Honorary Captains.

2nd Military District.

A.A.M.C.—
Major J. C. Robertson to be Lieutenant-Colonel (temporarily).

A.A.M.C. Reserve—
Robert Henry Beattie Moxham, Arthur Douglass, Milton Spencer Atwill, Basil Richard Jones, Howard Gordon Hardie, Edward Oliver Watson, Frederick Robert Forster, Theodore Soderberg, Percy Arthur Ash, John Albert Basil Walker, and Reginald Henry Green to be Honorary Lieutenants.

3rd Military District.

A.A.M.C. Reserve—
Albert Cherbury David Rivett to be Honorary Lieutenant.

4th Military District.

A.A.M.C. Reserve—
Honorary Major R. S. Rogers to be Lieutenant-Colonel (temporarily).

5th Military District.

A.A.M.C. Reserve—
Honorary Captain W. J. Beveridge to be Major (temporarily).

A.A.M.C.—
Captain A. W. Hill is appointed Principal Medical Officer, District Head-Quarters Camp Staff, 4th Military District, in addition to his duties as Command Sanitary Officer, and granted the temporary rank of Lieutenant-Colonel whilst holding such appointment, with pay at the rate of £684 per annum, inclusive of all allowances except travelling.

Army Medical Corps.

To be Major—
Captain Sir John McCall, Australian Army Medical Corps Reserve.

Appointments, etc.

Philip Sylvester Clarke, M.B., F.R.C.S., Acting Sub-District Naval Medical Officer (temporarily), Cairns, is appointed Surgeon, and he is appointed Sub-District Naval Medical Officer, Cairns, with allowance at the rate of Sixty pounds (£60) per annum.

Alan Syme Johnson, M.B., Acting Sub-District Naval Medical Officer (temporarily), Albany, is appointed Surgeon, and he is appointed Sub-District Naval Medical Officer, Albany, with allowance at the rate of Sixty pounds (£60) per annum.

The resignation of Surgeon Charles Campbell Baxter-Tyrie as Sub-District Naval Medical Officer, Cairns, is accepted as from 18th May, 1915.

The resignation of Surgeon Thomas Henry Robinson as Sub-District Naval Medical Officer, Albany, is accepted as from 31st July, 1915.

THE TRENTHAM COMMISSION.

After a prolonged and exhaustive investigation, the Commissioners appointed to enquire into the condition of the Trentham Camp in New Zealand have issued a voluminous report. Since the enquiry has been undertaken several of

the defects discussed in the report have been remedied, and many of the recommendations have already been carried into effect. On the other hand, the Commissioners have deliberately refrained from converting the enquiry into a court of investigation into the question of incompetence or negligence of any responsible officer. It was recognized that many of the persons who might have been called upon to defend themselves were no longer in the Dominion, and that in fairness to these absent men, who could not give an account of their actions, it would have been unconstitutional to proceed further with this aspect of the enquiry.

The Commissioners have come to the conclusion that the site of the camp, the climate and environments are not unsuitable, and that the health of the troops has not been impaired by these factors. The chief defects are summarized in the following manner:—The aggregation of so many men in a confined space; the bringing into an already infected camp large bodies of troops; the wetness of the ground, caused by the absence of efficient surface drainage; the absence of provision for drying clothes and boots; the deficiency in the design and equipment of hutments, and the overcrowding and presence of damp clothes during the sleeping time; the unnecessary exposure of men during sick parade, causing fatigue; the want of appropriate provision for dealing to the best advantage with an increasing number of sick men; the special infectious character of the diseases, and the sudden changes from the habits and comforts of civil life to the conditions of life in a military camp, and the want of knowledge of how to act with a due regard to the care of themselves and others.

It appears that the Commissioners arrived at the opinion that due care had not been exercised on all occasions for the prevention of sickness, or for the reduction of mortality. The hospital accommodation has been found to be insufficient, and the Commissioners blame the authorities for not having foreseen the needs of a large camp. Ample provision should have been made for dealing with epidemics. The medical examination in respect to sanitation is said to have failed.

Negative findings were arrived at in regard to neglect or improper treatment by any responsible officer, in regard to an undue delay in the removal of patients from the camp to the hospital, and in regard to cause for complaint on the part of the relatives of patients.

In respect to the outbreak of morbilli, the Commissioners have failed to trace the source of infection. They conclude that the spread of the disease was due to the state of overcrowding, and to the fact that the isolation of contacts became practically impossible after the end of March. It appears that 3857 men were quartered at one time in a camp in which measles was epidemic, and at this time all attempts to control the men who had been in close contact with those who had contracted the disease had ceased entirely. In the hospital at Berhampore, the overcrowding is said to have been due to the fact that the medical officers were unaware of the number of available beds at any given time, and furthermore, that the Director of Medical Services had not made a personal inspection when the overcrowding was reported. The action of Dr. Valintine in procuring additional accommodation at hospitals is commented on in laudatory terms.

In connexion with the measles epidemic, the Commissioners consider that the Medical Administrative Service did not realize the significance of the indications at an early stage, and that no sufficient warning was given to the military authorities. Had this been done, large bodies of soldiers would not have been brought into camp, and it is thought that the epidemic would not have assumed alarming proportions.

Turning to the epidemic of cerebro-spinal meningitis, the Commissioners express the opinion that the infection was introduced by a carrier. Dr. Martin, one of the Commissioners, calls special attention to the fact that the meningococcus is incapable of existing outside the body for any length of time, and that the area could not be regarded as infected. The opinions of the Commissioners in regard to the mode of spread of this disease need not occupy our attention, since this problem is being examined by expert hygienists and epidemiologists in many countries at the present time, and there are indications that mere theories will soon be replaced by definite knowledge, based on actual observations. It may be added that Dr. Champtaloup is conducting an investigation on the carriers in the camp at present, and that the results of his reasearch will be of material importance.

In close connexion with this subject is the evidence collected in regard to the tents and huts. There is no doubt that the tents at Trentham were pitched too close to one another. In consequence, the Commissioners have been forced to the conclusion that the plan of the camp was not in accordance with the most up-to-date principles. On the other hand, the floors have been cleaned and the tents aired regularly and the evil reduced to a minimum. In regard to the huts, the Commissioners find that the want of an asbestos or match-boarding lining to the galvanized iron wall, acting simultaneously with the effect of overcrowding, have rendered the men specially liable to infection. The huts should be nine feet high, and should be placed not closer than 30 feet to one another. It was found that the accommodation in each hut was as high as 50. The recommendation is made that not more than 32 men be placed in one hut, and that each bed be provided with a wall space of not less than 4 ft. 6 in. The Commissioners also recommend the adoption of a system of exhaust ventilation, in addition to the openings in the eaves.

Up to the present, it appears that the men have slept on mattresses on the floors of the huts. It is suggested that some simple form of stretcher might be supplied, to serve as a bedstead. A further recommendation is made to the effect that when the number of soldiers in camp permit of it, special huts should be set aside for meals.

In regard to the manner in which the work of the camp had been conducted, the Commissioners express the view that throughout the trying conditions described the men of all ranks acquitted themselves as soldiers and as men. As regards the military side of the camp administration, the Commissioners believe that the members had worked unsparingly and with devotion to their duty. The work had been rendered more difficult by the fact that it was a new experience for all concerned, that the exigencies of the war placed a strain on every officer in authority, and that the resources of the Dominion were limited. In spite of these circumstances, the task undertaken had been fulfilled on the whole in a satisfactory manner.

It has been recorded that the medical examination of men reporting themselves sick is conducted in an extremely thorough manner, and that the administration of the medical services has been satisfactory.

Vital Statistics.

SYDNEY AND NEWCASTLE.

The Government Statistician of New South Wales has issued his report on the vital statistics of the metropolis and Newcastle for the month of July, 1915.

Dealing firstly with the figures for Sydney, the number of births was 1,844, 946 being of males, and 898 of females. The rate was 29.4 per 1,000 of population, which is 2% above the average for the previous five years. The illegitimate birth-rate was 17% below the average for the previous five years. Three hundred and thirty-one births occurred in hospitals and other public institutions. The total number of deaths was 780, 424 of males and 365 of females. The mortality rate, 12.44 per 1,000 of population, was 3% above the average for the previous five years. The infantile mortality was 62 per 1,000 births. The fall in this rate, which stands 27% below the average, is most gratifying. Of the total deaths 318, or 41%, occurred in hospitals and other public institutions. During the month pulmonary diseases contributed most largely to the death roll, with 128 deaths. Diseases of the heart caused 98, Bright's disease 50, hæmorrhage of the brain 32 deaths. There were 56 demises from epidemic diseases, 43 from phthisis, and 46 from cancer.

There were 66 deaths from developmental diseases of infants, while senility was entered as the cause of death in 34 cases. There were 30 deaths from accident. The mortality from epidemic diseases in 60% above the average. This increased mortality is mainly due to measles, which caused 22 deaths, although an increased number of mortality was noted from diphtheria, scarlatina, and enteric fever. There were 3 deaths from cerebro-spinal meningitis. The returns of the Board of Health show that 44 cases of enteric fever, 240 of diphtheria, 360 scarlatina, and 3 of malaria were notified during the month. Of the 22 deaths from measles 17 occurred in children under 5 years of age. The majority of cases occurred in districts which are thickly populated. Of the 13 deaths from diphtheria 9 occurred in children under 5 years of age, and the fatal cases were distributed widely over the suburban area. There was also an increase of 16% in the mortality from pulmonary diseases. This was mainly due to an increased death-rate from pneumonia. During this month there were 82 deaths from pneumonia, which is the highest number yet recorded during July, and is 25% above the average for the preceding five years. Among the 247 deaths of persons over 65 years of age, 45 were due to diseases of the heart and 25 to cancer.

During the month of July there were 179 births, 91 of males, and 88 of females, in the Newcastle district. This number of births corresponds to an annual rate of 36.5 per 1,000 of population. Six of the children were illegitimate. The deaths numbered 39 (23 males and 16 females). This number of deaths corresponds to an annual mortality of 7.9 per 1,000 of population. Twelve deaths, or 30%, occurred in hospitals and public institutions. The number of births is three above and the number of deaths 22 below the mean number for the month of July during the previous five years. Of the persons who died, 14 or 36% were under 5 years of age, and 11 were less than 1 year old. The infantile mortality represented 61 deaths per 1,000 births. Of the deaths five were due to developmental diseases of infants, while diseases of the heart, Bright's disease, senility, and enteritis were each responsible for three deaths. There were one case of enteric fever, 15 cases of diphtheria, and 16 of scarlatina reported to the Board of Health. Two cases of enteric fever and 1 of diphtheria proved fatal.

Sydney and Newcastle.

The usual monthly returns of the births and deaths registered in the metropolis of Sydney and in Newcastle have been issued by the Government Statistician for August, 1915:—

In the metropolis of Sydney he records the birth of 883 males and 837 females. The equivalent annual birth-rate works out at 27.43 per 1,000 of population. The average rate for the preceding five years was 9% higher. Of the 1720 infants born 121 were illegitimate. The illegitimate birth-rate is equivalent to an annual rate of 1.93, which compares favourably with the average for the previous five years, which stood at 2.62. Seventeen per cent. of the births took place in hospitals and other public institutions. The number of infants under one year of age, whose death was registered during the month, was 117. This number is identical to that of the average for the previous five years. On the other hand the birth incidence for August, 1915, was lower, and consequently the infantile mortality works out at a higher figure. Calculated per 1,000 births, the infantile death-rate was 68, as compared with 62 for August of the previous five years.

The number of deaths at all ages registered during the month was 803. Of this number 224 affected individuals of 65 or over. One person of 90, five of 91, one of 92, one of 94, and one of 97 died during the month. The equivalent annual death-rate was 9% higher than the equivalent annual death-rate for August of the previous five years. It was 12.81 per 1,000 of population. Thirty-eight per cent. of the deaths occurred in hospitals and other public institutions.

In regard to the causes of death, morbilli killed 61 persons, of which 45 were under 5 years of age. In 1907 there were 10 deaths from this disease, in 1909 there were 2 in 1910 there were 8 in 1912 there were 43, and in 1913 there was 1. Tuberculosis is entered as a cause of death in 57 instances. In 39 of these the lungs was the seat of disease. The number of fatal cases of pulmonary tuberculosis registered in August since 1906 has varied from 35 (1910) and 50 (1909). Diarrhœa and enteritis were responsible for 18 deaths. Ten of the patients were under two years of age. The incidence of this disease is higher than the average for August since 1906. The lowest number of deaths from this cause was 6 in 1909, and the highest 21 in 1913. Pneumonia, as is usual in August, caused a large number of deaths, 60 persons having succumbed to it. There were 32 deaths from broncho-pneumonia. The Statistician compares the number of deaths due to lobar and lobular pneumonia during the month of August in the 10 years from 1906. The figures given for 1915, viz., 92, is considerably higher than the next highest, which was 79, in 1914. The lowest number was 38, in 1908. Cerebro-spinal meningitis killed 11 persons. This disease is not yet a notifiable disease, and it is therefore impossible to gauge the incidence with accuracy; we have, however, reason to believe that about 40 cases have been dealt with during the month. If this figure be correct the mortality would be 27.5%. In addition to these 11 deaths there were 9 from simple meningitis. The number of deaths from enteric fever was 7. The average for August of the period 1906 to 1915 was 4.7. There were 6 deaths from diphtheria, which is only slightly higher than the average. There were 6 deaths due to syphilis, 3 affecting children under 5, during the month. Scarlet fever proved fatal on 5 occasions, and influenza on 4. The number of deaths from acute endocarditis was 4, and from acute nephritis was 4. One case of leprosy, 1 of septicæmia, 1 of tetanus, and 1 of beri beri proved fatal.

The number of deaths from diseases of the cardio-vascular system was 117. Of these 72 were due to organic diseases of the heart, 25 to cerebral hæmorrhage, 7 to atheroma, etc., 4 to acute endocarditis, 3 to aneurysm.

There were 61 deaths from cancer.

Bright's disease was fatal on 49 occasions; in 22 cases the patient was 65 or over. There were 44 deaths ascribed to senility.

Of the deaths due to puerperal conditions 8 are entered under the heading puerperal septicæmia, while one each was due to "puerperal albuminuria, convulsions," puerperal hæmorrhage, and "other accidents at child-birth." Of the 54 deaths due to diseases to early infancy, the cause in 35 is given as premature birth, in 14 as congenital debility, icterus, sclerema, and in 5 as "other diseases peculiar to early infancy." It is unfortunate that the causes of infantile death cannot be defined more accurately.

In the Newcastle district 158 infants were born, of which 82 were females. The equivalent annual birth-rate works out at 32.28 per 1,000 of population. Six illegitimate children were born, which is equal to an annual rate of 1.2. The number of deaths under one year of age was 13, which yields an infantile death-rate of 82.

The total deaths numbered 59, which is equivalent to an annual death-rate of 12.12 per 1,000 of population. In 36 out of the 59 persons affected were under 1 or over 65.

In regard to the causes of death, diseases of the cardio-vascular system head the list with 14. Of these 9 were due to organic diseases of the heart, 2 to cerebral hæmorrhage, and one each to atheroma, aneurysm, and lymphangitis. Of the infective diseases, tuberculosis caused 2 deaths, pneumonia 2, broncho-pneumonia 4, chronic bronchitis 2, simple meningitis 2, and erysipelas, septicæmia, diarrhœa, and enteritis 1 each. There were 4 deaths from cancer, 3 from Bright's disease, and 4 from senility. The Statistician publishes a table setting forth the number of deaths from the 17 principal causes during August of each year from 1906. The figures are too small to yield reliable information.

VICTORIA.

The Government Statist of Victoria (Mr. A. M. Laughton) has issued his returns for the quarter ending March 31, 1915. The figures made available are insufficient for the purposes of comparative analysis. It is not possible to obtain from the data presented information such as is usually required in dealing with vital statistics. The Government Statist would be well advised to provide the information which is usually given in such reports. The following

table purports to compare the vital statistics of the second quarter of the present year with that of 1914:—

	Quarter ended June 30. 1914.	1915.
Marriages	3,253	2,996
Births	9,086	9,168
Deaths	4,030	3,788
Deaths due to—		
Phthisis	256	217
Other Tubercular Diseases	56	42
Cancer	277	280
Typhoid Fever	31	23
Diphtheria	69	66
Measles	9	18
Scarlet Fever	1	3
Whooping Cough	16	10
Deaths of—		
Infants (under 1 year)	637	597
Aged people (65 years and upwards)	1,445	1,385

The second table reviews certain figures recorded in Melbourne, Ballarat and Bendigo during the same period:—

	Greater Melbourne. Q'ter ended June 30,		Ballarat. Q'ter ended June 30,		Bendigo. Q'ter ended June 30,	
	1914.	1915.	1914.	1915.	1914.	1915.
Births	4,324	4,565	265	279	333	291
Deaths	2,100	2,037	178	181	180	151
Deaths due to—						
Phthisis	148	123	14	11	14	10
Other Tubercular Diseases	33	22	1	1	2	—
Cancer	153	165	11	12	13	5
Typhoid Fever	3	6	2	3	6	3
Diphtheria	35	39	2	1	2	4
Measles	8	9	—	—	—	—
Scarlet Fever	1	1	—	—	—	—
Whooping Cough	4	7	1	—	—	—
Deaths of—						
Infants (under 1 year)	320	347	21	23	27	26
Aged people (65 years and upwards)	698	674	83	72	66	67

Birth and death statistics for the quarter ending June 30, 1915, are stated to be very satisfactory. The births numbered 9,168 for the whole State, and 4,565 for greater Melbourne, as against 9,086 and 4,324 respectively in the corresponding period of last year. The children born out of wedlock numbered 557, which was 47 above the total for the same period of the previous year. The death-rates of all ages was slightly below the average. A substantial reduction in the mortality rate from tubercular disease occurred during this quarter.

Hospitals.

THE CHILDREN'S HOSPITAL, CARLTON.

The annual report of the Children's Hospital, Carlton, for the year ending June 30, 1915, is a short document, in which but scant detail of medical importance is given. During the year, 1999 patients were admitted into the hospital, while there were 157 in the institution on July 1, 1914. On June 30, 1915, there were 145 patients still under treatment, so that the total number in whom the treatment was completed amount to 2,011. The number of deaths was 278, which is equivalent to a total mortality of 13.8%. The mortality in the year 1913-1914 among 1,632 children was 13.78%. The extraordinary coincidence of the mortality rate for the two years is worthy of note. The average number of patients in the hospital worked out at 143.6. On two occasions, no fresh patients were admitted for a time, on account of the occurrence of infective disease within the wards.

The Pathological Department has recently been re-organized, and a special report of the year's work is appended to the annual report for the first time. It is quite impossible to glean from the summary of the bacteriological examinations what the diagnostic findings in the various cases were. For example, it is noted that the cerebro-spinal fluid was examined cytologically 120 times and bacteriologically 35 times. The nature of cytological and bacteriological findings is not disclosed, and it is therefore impossible to ascertain what the significance of these examinations was. Again, the urine was subjected to a microscopical examination on 267 occasions, while bacteriological tests were applied 104 times. What the results of these examinations were is not stated. In the case of "swabbings" from the throat and nose, by which we presume that the removal of mucus for bacteriological examination is implied, it may be taken for granted that the 3,850 negative results mean that diphtheria bacilli were not found in 3,850 instances, and the 260 positive results mean that 260 children were either harbouring diphtheria bacilli in their throats or noses, or were actually suffering from diphtheria.

In the list of autopsies, the nature of the fatal disease is given. Entero-colitis killed 28 children; generalized tuberculosis, including 11 cases of tubercular meningitis, was found in 13 cases; there were 7 cases of broncho-pneumonia, 5 of lobar pneumonia and 3 of tubercular pneumonia. Of the seven cases of non-tubercular meningitis, five were due to the pneumococcus, one to some septic organism, and one to Weichselbaum's meningococcus. Nephritis, encephalitis, intussusception, septic pyæmia and endocarditis caused death on three occasions each. The few details given are evidence of the extremely valuable work carried out in the hospital and the pathological department. The importance and interest attaching to this work impel us to appeal to the members of the staff to supply full records of this work in future years, even if much of the matter would be of no interest to the general public. Should it be felt that the annual report would be overloaded by statistical data, from which scientific information can be gleaned, we would be prepared to publish for the information of the medical profession an account of the types of disease dealt with, and a brief resumé of each fatal case. The material is too valuable to bury in the case notes of the hospital.

Much of the work appears to have been carried out under adverse conditions. Drs. W. A. Wood, H. Hume Turnbull, Balcombe Quick, C. L. Lamprière, W. Kent Hughes, Rupert M. Downes, W. G. D. Upjohn and Lionel J. Hood are the members of the staff who are absent on military duty in connexion with the war. Dr. Bennie resigned his office of Honorary Physician and Surgeon after 31 years' service, and Dr. Balcombe Quick was appointed to his vacant post. Dr. White was appointed to the post of Honorary Physician, and the office in the Out-Patients' Department thus rendered vacant was filled by Dr. Silberberg.

The financial position of the hospital is not satisfactory. The year was started with a credit balance of close on £400, and closed with a debit balance of close on £500. The loss of revenue, amounting to £1,517 was ascribed to a great extent to the deflection of charitable gifts from the hospital to the patriotic funds. The Governmental grant amounted to £2,500, the grants from municipalities amounted to £436, while investments brought in £526, making a total of £3,462. The Government grant amounted to under 18½% of the total revenue. The maintenance cost £13,390. The cost per patient per diem works out at 5s. 1⅓d. In many departments economy has been exercised, as compared with previous years, and in no item does it appear that the charges are at all high. A constant drain on a children's hospital in respect of the development of modern departments, modern equipment and general upkeep renders it impossible for the managers to curtail expenditure if efficiency is to be achieved. It has become apparent that this hospital is in urgent need of extended support, and if the present condition of the charitable purse excludes any increase in voluntary assistance, the grants from the Government and municipalities must be augmented, in order that the good work may be continued.

HOME FOR CONSUMPTIVES, ADELAIDE.

A deputation, introduced by the Honourable F. W. Coneybeer, M.P., waited on the Chief Secretary of South Aus-

tralia on September 6, 1915, for the purpose of urging the Government to proceed with the removal of the Hospital and Home for Consumptives in North Terrace to a more suitable situation. It was pointed out that in 1909 the matter had been brought to the notice of the Government, after the question of the treatment of tuberculosis had been discussed at a conference held at Unley. The reasons put forward in favour of the removal were, firstly, that the premises in North Terrace were devoid of brightness and sunshine and not satisfactory for the treatment of a condition like pulmonary tuberculosis. Secondly, the area was congested, and there was reason to object to the continued presence of an infectious diseases block in the midst of a thickly populated district.

The Chief Secretary promised to bring the matter to the notice of the cabinet, and, if the necessary sum could be obtained from the Treasury, he would urge the rebuilding of the hospital in a more favourable situation without delay. He failed to understand why the building in North Terrace was employed for this purpose in 1904. He promised to lay the views of the members of the deputation before the cabinet that afternoon.

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Correspondence.

CEREBRO-SPINAL MENINGITIS.

Sir,—Regarding the outbreak of cerebro-spinal meningitis in Australia, it seems to me that, in order to cope efficiently with it, it is necessary to regard this affection not as a disease *in esse*, but as a complication of a disease, which, without such complication, is a trivial affair, so much so that it may affect an individual without his knowledge. The disease which, during an epidemic of meningitis, probably affects 10 or 20 individuals for every one who develops meningitis, is an infection of the naso-pharynx by the so-called meningococcus, which, in most cases, does little harm to its host, but is capable of being transferred by him to another, to whom it may cause the gravest injury.

I have had this view forced upon me lately, and send this brief note, in the hope that it may help those brought in contact with the disease to recognize the need of the isolation and bacterial investigation of all contacts and all sufferers from nasal catarrh or the ordinary cold in the head.

Yours, etc.,
C. JOYCE, M.B., Ch.B. (Melb.).

Pinjarra, W.A.,
September 3, 1915.

Sir,—I submit extracts from a discussion on this disease held at the Royal Society of Medicine, England, in February last, with my comments thereon, Dr. J. C. Martin, F.R.S., Chairman. Sir William Osler opened the discussion (*Proceedings*, Vol. VIII., No. 5).

The theory that the meningococcus is the specific organism of the disease is exploded, for Dr. Osler says the results of the use of Flexner's meningococcic serum in the present European epidemic was far from satisfactory; secondly, a polyvalent serum, including the newest strain, parameningococcus, is now recommended. The use of a polyvalent serum in so definite a disease is unscientific, a mere groping about in the dark. Polyvalent sera are not employed in typhoid, small-pox or diphtheria; no, because their specific organisms are known. The true causal organism of cerebro-spinal meningitis has yet to be discovered. The great variability of the strains of the germ at present held accountable for the disease is the bacteriologist's nightmare. The disease is never pandemic in the sense that influenza is. It has always been a soldier's disease. Oversea troops, on return home, are often responsible for epidemics, and the majority of outbreaks have started in barracks. It is the private soldier who invariably contracts the disease, not the officers, who live a more hygienic life. It usually attacks young recruits; why? Because these youths, especially is from the country, "go the pace" when on leave in the city, with the usual consequences. As to sources of infection, Dr. Osler stresses the importance of carriers, *i.e.*, healthy persons who have meningococci in their naso-pharynx, whether or not they have been contacts. As no explanation is forthcoming, why such "carriers" are found amongst those who have never been exposed to disease, and as it is undecided how the germ really reaches the meninges, whether through the ethmoidal-sphenoid route or through the blood stream, I regard the theory of naso-pharyngeal infection as intolerable. Further, does the ethmoidal-sphenoidal route explain the dominance of the spinal involvement and symptoms? Why do so many of the so-called "carriers" fail to develop the disease? Are not the catarrhal symptoms associated with the disease due to the *micrococcus catarrhalis* rather than to the meningococcus? Almost every soldier at Seymour had naso-pharyngeal catarrh for a time. Why then were there not more cases? The real "carriers," I believe, are *Pediculi corporis*, laden with ingested gonococci or full of serum from a meningitic patient. Such ingested gonococci may undergo some mutation in their host, the pediculus, thus causing bacteriological confusion as to the various strains found in the disease. Would a bacteriologist test this, as yet, uninvestigated opinion? Preventive vaccination for this particular disease is not recommended, either by the War Office or the Local Government Board in their respective recent memoranda. It is a definitely preventible disease. The present epidemic offers a golden opportunity for studying the ætiology, and good would result if the Branches of the Association in the several States devoted portion of each monthly meeting to its discussion while the epidemic is with us; for, in the coming summer, when ablutions will be the order of the day, the disease will temporarily become quiescent, and may be forgotten.

Yours, etc.,
MORRIS GAMBLE.

Kew, September 7, 1915.

Sir,—I had expected some criticism of an interesting hypothesis advanced by Dr. Gamble in your recent issue as to the identity of the gonococcus and meningococcus. The *diplococcus meningitides intracellularis*, although gram negative, like the gonococcus, differs from it in appearance in not being kidney shaped, in its cultural characters and its pathogenicity to animals. The meningococcus appears to cause more confusion with other organisms, such as Still's diplococcus of posterior basic meningitis, the *micrococcus catarrhalis*, and, many years ago, even the pneumococcus. The gonococcus is capable of affecting practically every organ in the human body, such as skin, glands, mucous membrane, lungs, heart, pericardium, bones, joints, nervous system, etc., and if the reports of our authorities in the daily papers are to be accepted, it appears to give a certain degree of immunity to cerebro-spinal fever, which is said not to occur in venereal cases.

Many years ago Goodwin isolated the meningococcus in the nasal mucus of 50% of meningitis patients, and according to many articles in the *British Medical Journal* of this year, the nasal mucous membrane appears to be the accepted route of entry of this coccus into the system, but, owing to its low vitality, the opinion has been expressed that the primary invasion of the mucous membrane of the nose is due to streptococci, which prepare the way for the entrance of the meningococcus.

The question whether vaccinia is only small-pox modified by passing through the cow has not yet been settled, and as vaccinia confers a certain degree of immunity from small pox, may not the gonococcus give somewhat similar results in regard to immunity from the meningococcus.

All the encampments around Melbourne appear to be more or less affected with cerebro-spinal fever, and it would be interesting to note the results obtained in, say, two out of four main camps by the use of a vaccine of micrococcus catarrhalis, combined with the gonococcus, or meningococcus.

The combined vaccine, if not available in sufficient supply, might be used in all cases of coryza in one or more camps, in conjunction with local treatment of the mucous membrane of the nose and throat, and the administration of hexamethylene tetramine, which would be not only helpful to the meninges but would improve the condition of the mucous membrane of the nose and throat.

Yours, etc.,
R. A. PARKER.

Healesville, Victoria,
September 6, 1915.

Medical Appointments.

Dr. John Stewart has been appointed a Public Vaccinator at Gladstone, South Australia.

Dr. James Eli Webb has been appointed Medical Officer under the Department of Public Instruction, New South Wales.

Dr. C. E. Corlette, of Sydney, New South Wales, has been appointed Medical Referee under the "Workmen's Compensation Act, 1910."

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page ix.

Brisbane Hospital, Resident Medical Officers.

Royal Alexandra Hospital for Children, Camperdown, Resident Medical Officer.

Department of Education, New South Wales, Medical Officer (Female).

Births, Marriages, and Deaths.

The charge for inserting advertisements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps with the notice, not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTH.

JENSEN.—On August 13, 1915, at Seymour, Victoria, to Dr. and Mrs. F. J. Jensen—a daughter.

Books Received.

POST-MORTEM METHODS, by J. Martin Beattie, M.A., M.D., 1915. Cambridge: The University Press; demi 8vo., pp. 231, illustrated.

AN INDEX OF TREATMENT, by Various Writers. Edited by Robert Hutchison, M.D., F.R.C.P., and James Sherren, F.R.C.S.; Seventh Edition, revised and enlarged, 1915. Bristol: John Wright & Sons, Ltd.; demi 8vo., pp. 1143.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA; Third Series, Vol. XXXVI., 1914. Philadelphia: W. J. Dornan; Royal 8vo., pp. 388.

Diary for the Month.

Sept. 21.—N.S.W. Branch B.M.A., Executive and Finance Committee; Ethics Committee.
Sept. 22.—S. and S.P.M. Assoc., Meeting of the Active Staff.
Sept. 22.—Cent. West. Med. Assoc., General.
Sept. 23.—City Med. Assoc., General.
Sept. 23.—Return of Ballot Papers for election of two members of Federal Committee.
Sept. 24.—Melb. Hosp. Clinical Soc.
Sept. 24.—N.S.W. Branch, B.M.A., Ordinary. Election of two members of Federal Committee.
Sept. 28.—N.S.W. Organization and Science Committee; Medical Politics Committee.
Sept. 28.—Vict. Branch, B.M.A., Eye and Ear Section.
Sept. 29.—Vict. Branch, B.M.A., Council.
Sept. 30.—Vict. Branch, B.M.A., Election of two members Federal Committee.
Sept. 30.—South Aust. Branch, B.M.A., Monthly.
Oct. 1 and 2.—N.S.W. Branch, B.M.A., Annual Meeting (1915) of Delegates of Local Associations of Members with the Council.
Oct. 1.—Q. Branch, B.M.A., Monthly.
Oct. 5.—N.S.W. Branch, B.M.A., Council (Quarterly).
Oct. 6.—Vic. Branch, B.M.A., Monthly.
Oct. 8.—N.S.W. Branch, B.M.A., Clinical.
Oct. 8.—S. Aust. Branch, B.M.A., Council.
Oct. 12.—Tas. Branch, B.M.A., Monthly and Council.
Oct. 13.—Melb. Pædiatric Society.
Oct. 14.—West. Med. Assoc. (Wellington), N.S.W.
Oct. 14.—Vic. Branch, B.M.A., Council.
Oct. 15.—East. Sub. Med. Assoc.

Covers for binding *The Medical Journal of Australia* for Vol. I., 1915, can be obtained on application to the Manager B.M.A. Building, 30-34 Elizabeth Street, Sydney. The price of a cloth cover is 2s., and of half leather 3s. 6d.; postage, 7d.

Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND. (Hon. Sec. B.M.A. Building, Adelaide Street, Brisbane).	Brisbane United F.S. Institute. F.S. Lodges at Longreach.
WESTERN AUSTRALIA. (Hon. Sec. 230 St. George's Terrace, Perth).	Swan District Medical Officer. All Contract Practice Appointments in W.A.
NEW SOUTH WALES. (Hon. Sec. 30-34 Elizabeth Street, Sydney).	Australian Natives Association. Balmain United F.S. Dispensary. Burwood District F.S. Institute. Canterbury United F.S. Dispensary. Goulburn F.S. Association. Leichhardt and Petersham Dispensary. M.U. Oddfellows Med. Inst., Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Mullumbimby District Friendly Societies. N.S.W. Ambulance Association and Transport Brigade. N. Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Braidwood. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Mudgee. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, and Auburn. F.S. Lodges at Wellington. Newcastle Collieries— Killingworth. Seaham Nos. 1 and 2. West Wallsend.
SOUTH AUSTRALIA. (Hon. Sec. 3 North Terrace, Adelaide).	The F.S. Medical Assoc. Incorp., Adelaide.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The Librarian of the New South Wales Branch has called our attention to the fact that the following issues of the *Lancet* have been borrowed some time ago, and have not yet been returned. The member who has these copies in his possession is respectfully requested to return the same as soon as possible, in order that the volume may be bound: January 2, 9, 16, 23, 30, February 6, 13, 20, April 24, and May 29.

The Librarian of the Victorian Branch will be pleased if any member possessing spare copies of the following journals will present them to the library, in order to complete the sets:—

Lancet, October 3, 1914, April 10, 1915, and subsequent numbers.
Practitioner, September to December, 1914, January and February, 1915.